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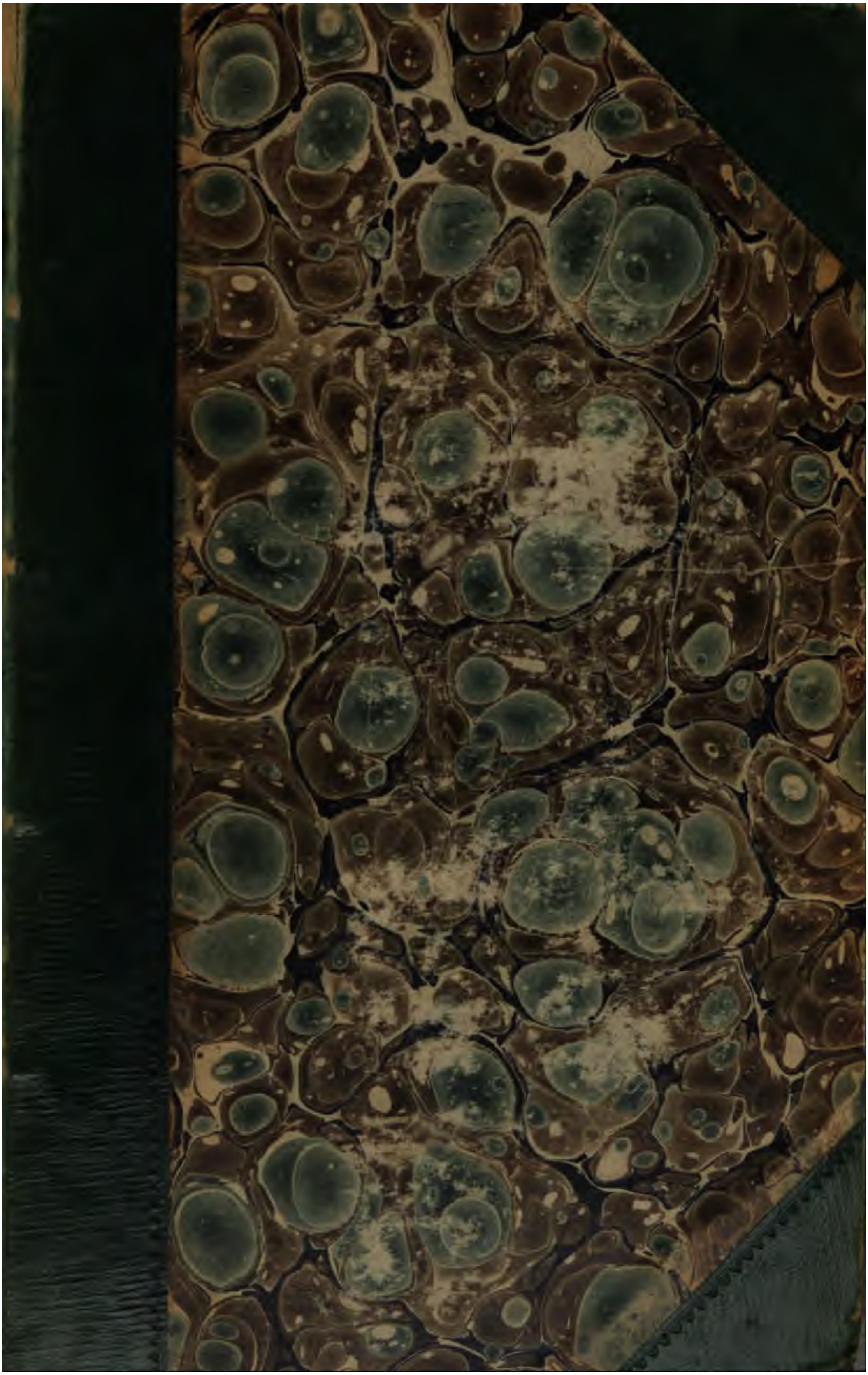

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THE

GARDENER'S MAGAZINE,

AND REGISTER OF RURAL & DOMESTIC IMPROVEMENT.
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GARDENING And GARDENERS For
VOL. IX.
1833.

CONDUCTED

BIBLIOTHECA·BODLEIANA

By J. C. LOUDON, F.L.S. H.S. &c.

AUTHOR OF THE ENCYCLOPÆDIAS OF GARDENING, OF AGRICULTURE, AND OF COTTAGE, FARM,
AND VILLA ARCHITECTURE, AND EDITOR OF THE ENCYCLOPÆDIA OF PLANTS.

LONDON:
PRINTED FOR
LONGMAN, REES, ORME, BROWN, GREEN, AND LONGMAN,
PATERNOSTER-ROW.
1833.

Supplement to our *Hortus Britannicus;* and in this form we mean to continue these lists in future. Our Gardening Tour on the Continent is continued in this Volume, as is also our Tour in the north of England and west of Scotland.

The Ninth Volume, that for 1833 (just completed), contains accounts of some of the finest Gardens of France, Bavaria, and Baden; some valuable papers on Arboriculture and Landscape-Gardening; part of our Tour in the west and south of England; Mr. Mallet's Tour on the Continent; the modes of Heating by Hot Water or other fluids, of Perkins, Weekes, Holmes, Ure, Kewley, and others; and several very interesting papers on Vegetable Physiology.

In the above rapid glance, we have only noticed one or two subjects in each Volume, as features by which to characterise it; but, viewing the series of volumes as a whole, they will be found to contain all the accessions that have been made to the Science and Practice of Gardening throughout the temperate regions of both hemispheres, and more especially in Britain, since the commencement of the Magazine, in January, 1826. The facts and reasonings contained in these volumes are the more valuable, from having stood the test of retrospective criticism from their various readers and contributors. The liability to this test renders statements communicated to the public through a scientific periodical, of much greater value than such as are published in a work which, from its plan, admits of no discussion. The Gardener's Magazine has been from its commencement, and will continue to be, open to the most rigid criticism of whatever appears in it, whether by Contributors or the Conductor; the only condition being, that such criticism shall be concise, and in language free from personal abuse.

With the Tenth Volume, that for 1834, will commence a reduction of the price of the Gardener's Magazine to 2*s.* 6*d.* a Number, or 15*s.* for the Annual Volume: a reduction which has been made in compliance with the suggestions of various Gardeners, and in conformity with the spirit of the times. In this New Series, as it may be considered, so bulky an annual volume will not be produced; but the size of the page will be increased, so as to enable us to insert a nearly equal quantity of matter; and, what will be of great advantage to young gardeners, to enlarge the size of the engravings, more especially when these contain plans of gardens, or of pleasure-grounds.

We are happy to state, that, notwithstanding the publication of no fewer than six Gardener's Magazines in England, besides one in Ireland, since this (the first Gardener's Magazine which ever appeared in the English language) was commenced, the contributors to our work, so far from falling off, either in their numbers or in the interest of their communications, have steadily increased in both. These circumstances afford a gratifying proof of the widely spreading taste for our art, and confirm us in the sentiments we have expressed in reviewing in this work the first numbers of the different periodicals alluded to.

In returning our Contributors and our Readers our sincere thanks, we can assure them that no exertion whatever on our part, or on that of the publishers, shall be wanting to insure the continuance of this Magazine in the same superior style in which it has hitherto been produced; and to render it, in all respects, what it originally professed to be, and has hitherto been, a perpetual supplement to our *Encyclopædias* of *Gardening*, of *Agriculture*, and of *Plants*, and to our *Hortus Britannicus.*

J. C. L

Bayswater, Nov. 20. 1833.

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surface, the park and pleasure-ground. An excellent kitchen-garden is already walled round, and the gardener's house, about to be commenced, we were informed, will be the first in Scotland, not only as a commodious and complete dwelling, but as a specimen of cottage Gothic architecture. The designer of the garden, Mr. Hannay, is the present head gardener at Drumlanrig; and the architect of the house is Mr. Burn of Edinburgh. As far as we saw the new line of approach, it did not appear to us at all satisfactory; because we could not conceive how the ascent to the house by it could be rendered either easy to travel over, or agreeable to the eye. Judging from a hasty glance, we should say that the best way to procure two approaches of perfectly easy ascent and descent, of great beauty and variety in the views seen from it, and of striking effect on arriving at the house, would be, to commence two or three miles to the right and left, and to lead from the present public road, a private one, on a uniform but very gentle slope, along the side of the range of hills at the back, or what is, we believe, the south side of the present flower-gardens. We would there form a court-yard to the palace, instead of the present one on the western front, reserving the extensive prospect from the north front to be obtained by the stranger first from the windows. As pleasure-ground, we would follow up the present style of the place, and form such additions and variations as would place two ranges of terrace-gardens on each side of the east, west, and north fronts. The beautiful terrace-gardens already existing show with how much effect this might be done. Whether we might not change the course of the river in some places, or produce ramifications from it, in such a way as to show more water from the palace windows, we did not take time enough to consider; but, at all events, we think we ascertained the practicability of diverting a part of its waters in such a way as to produce a powerful waterfall in one place, and a lake in another. We have great pleasure in stating that the flower-gardens were in the highest order and keeping, and the grass edgings to the walks entirely to our mind. Mr. Hannay we found fully concurring in all that we had said on that subject in our October article. (Vol. VII. p. 544.) Some instruction, as well as amusement, may perhaps be obtained by the reader, from the perusal of what the celebrated Gilpin said of this place, then called Queensberry House, in his *Observations relative chiefly to Picturesque Beauty in Scotland, &c.*, published in 1776. "The garden front of Queensberry House," he observes, "opens on a very delightful piece of scenery. The ground falls from it, near a quarter of a mile, in a steep sloping lawn, which at the bottom is received by a river; and beyond that rises in lofty woody banks. All these objects are in the grandest style, except the river; which, though not large, is by no means inconsiderable. It is amazing what contrivance has been used to deform all this beauty. The descent from the house has a substratum of solid rock, which has been cut into three or four terraces, at an immense expense. The art of blasting rocks by gunpowder was not in use when this great work was undertaken. It was all performed by manual labour; and men now alive remember hearing their fathers say, that a workman, after employing a whole summer day with his pickaxe, would carry off in his apron all the stone he had chipped from the rock. How much less expensive is it, in general, to improve the face of nature, than to deform it! In improving, we gently follow; in deforming, we violently oppose. The Duke of Queensberry of that day, who carried on these works, seems himself to have been aware of his folly. He bundled up all the accounts together; and inscribed them, as I have been informed, with a grievous curse on any of his posterity who should ever look into them." (p. 84.) The other observations made by Gilpin on this place are excellent, as, indeed, is all that he has written on picturesque beauty; always, however, making allowance for his almost exclusive admiration of that kind of beauty.

Of all the alterations which we should wish to make on the grounds at Drumlanrig, there is none that strikes us as of half the importance as that of forming new approaches. There is one now going on; but a more preposterous undertaking of the kind we have seldom or never witnessed in any country. An attempt is made, or was making in August, 1831, to ascend a steep acclivity directly in front of the house; a still more hopeless task than that of cutting the rock into terraces, above related by Gilpin, by the old Duke of Queensberry. The duke did succeed, and the terraces were formed, and now exist; but this approach never can form an easy ascent; and we maintain that, even if it did, it would be in the very worst taste imaginable in the given situation; for this specific reason, that it would show all the striking beauties of the spot before entering the house. Now, we hold it to be a fundamental principle, in laying out grounds, that the grand beauties of every situation should be first shown to the stranger from the drawing-room windows. If this be not a fundamental principle, we should be glad to know on what reasons either the situation for a house is fixed on, or the direction of a road to it is laid out. There are many points in which a stranger taking a cursory glance at a place may be mistaken; but, if he has his eyes open, he never can err in forming an opinion as to the approach. As to the terraces we certainly have no wish to alter them. At the time Gilpin wrote, terraces were common, and the great rage was for nature and the picturesque. That rage has now subsided; and in landscape-gardening, as in architecture, and in other arts which combine beauty with utility, reason is the governing principle.

Of Mansion Residences, the first we saw in order of time was Terragles, where some additions to the house were being made, and where the park had been sprinkled over with single trees, in the equidistant manner, so as to destroy all allusion to natural grouping, and, in a great measure, obliterate whatever variation of surface there was originally in the ground. These trees were chiefly oaks, from 20 to 30 ft. high: they were removed without any preparation, in the preceding two years; and scarcely one of them had failed, much to the credit of the very intelligent gardener, Mr. Carruthers. Adjoining the house was an old architectural garden, consisting of a level square platform, with thick, lofty, hornbeam hedges, and on two sides a broad grass terrace, between 20 and 30 ft. higher than the exterior grounds. The view from this terrace to a new kitchen-garden, which meets the eye on a gentle slope, backed by wood, is striking, because uncommon, and is, we think, agreeable. By the routine manner of improving, this garden would be turned into a pleasure-ground; but, from the impressions it made on us, we should be inclined to retain it as a garden of fruit and flowers. It was in excellent order.

Jardine Hall, in the midst of what was recently a wild country, and several miles distant from any similar mansion, is an imposing object; and, as we approached it, the broad flight of steps to the portico, with the group of stable offices with clock cupola on the one side, and the encircled boundary wall with its porticoed doors and ornamented railings on the other, had an Anglo-Italian air, the more charming, because unexpected in such a style of country. The ample entrance hall of this house contains some large handsome paintings, and rare specimens of natural-history subjects; and, like the first bar in a piece of music, it gives a note of preparation for the ornaments which prevail throughout the house, and for the almost complete museum of British birds collected by Sir William Jardine, and admirably mounted and displayed. There is a large botanic garden, which already includes a considerable American ground; an arboretum, which will be as complete as the climate will admit, is commenced; and Linnæan and Jussieuean arrangements of herbaceous plants are in contemplation. The object is, to combine general effect and ornamental display with science. On the whole, Jardine Hall, and the pursuits of its amiable and hospitable owner, show how much happiness a cultivated mind may enjoy in the country, without reference to towns, cities, or a populous neighbourhood.

Raehills is in a situation still more wild than Jardine Hall, but it has the advantages of having a hilly surface, a great extent of wood, and a river considerably below the house, and not on a level with it, as at Jardine Hall. It is singular that there should be considerable streams near both mansions, without the water being seen from either of them. This defect might be removed in both cases, but not without some expense. At Raehills, there is a holm which might easily be flooded, so as to form a lake; or, the bed of the river, which is now along one side of this holm, might be changed to the other side, where it would be seen from the house. The natural features of Raehills are all grand and picturesque; but, with the exception of the new additions making to the house, and the general masses of the distant plantations as seen from it, we cannot say much for the operations of art. Whoever may lay out the approach road will do well to consider what we have said on this subject in a preceding page; and the whole of the walks among the natural woods and rocks require reformation, agreeably to the principles alluded to.

Kirkmichael House is rebuilding, in a sort of Elizabethan style, from the design of Mr. Burns. There is a good kitchen-garden just completed, including a suitable gardener's house, and forcing-pits. The situation of this house has little to recommend it, in a country abounding with so much natural beauty; but highly improved design and high keeping will effect much; and, in a country where these qualities are less common than the beauties of nature, they will probably be valued more.

Closeburn Hall is a plain but very commodious mansion, and its vicinity has been the scene of more improvements of the useful kind, than that of any other mansion in the south of Scotland. The extent of surface that, from useless bog heath or other sterile soil, has been turned into good pasture, irrigated, rendered arable, or planted with trees, during the last forty years, is astonishing. During this time, limeworks have been established on a highly improved principle, and the practice of liming both arable and grass land rendered general throughout the country. Saw mills have been erected, and the pines and firs planted by Mr. Menteath sawn up into boards, laths, and for other purposes, and sold in this manufactured state at very moderate rates; thus at once creating a market for the article, and tempting the farmers and owners of cottages to increase their comforts. Mr. Menteath has formed many miles of excellent roads, some of them on the principle of alternate levels and inclined planes, with stone wheel-tracks on these planes, by which he has found that one horse can draw from thirty cwt. to two tons in small four-wheeled waggons (*Ency. of Agr.*, 2d edit. § 3540-1.) He uses extensively bone manure; and, as an Englishman, has of course practised his country's method of making hay: but, though he has done this for nearly half a century, his neighbours still continue the old practice of withering it in the field. (Vol. VII. p. 534.) Schools have been established by Mr. and Miss Menteath; and, in short, there is no good work that can be expected from a resident landed proprietor of great intelligence and the most active benevolence, that has not been engaged in (and that, too, with success) by this family.

Munches affords an example of agricultural improvement, combined with great taste in landscape-gardening, as far as the latter art has been called into use. The line of approach, though over a flat surface, is one of the most perfect things of the kind in this part of the country, and the trees seen from it, whether those formerly existing or recently planted, are all in natural combinations; the groups in the foreground varying with every change of the spectator, and all seeming to belong to larger masses; which, in their turn, appear to connect themselves with an interminable forest, which carries the eye to the woods that clothe the sides of the neighbouring granitic mountains. On arriving at the house, we found it unexpectedly close on the bank of a winding river, near which there are some very singular masses of naked granite, which rise abruptly in the lawn, and remind us of the rocks sometimes observed in Chinese drawings: when the place comes to receive its finish, these masses will afford fine opportunities of displaying rock plants, trailers and creepers, with various half-hardy shrubs of rarity or ornament. We were informed by Mr. Maxwell, that, in his gardening improvements, he had received considerable assistance from the hints of his friend, the Rev. Mr. Carruthers of Dalbeattie; a gentleman whose taste and general views, judging from some hours passed in his company, and from his own beautiful little residence, St. Peter's, appeared to us entirely to coincide with our own. The kitchen-garden at Munches was in the most perfect order and keeping: there was a little too much raking on the gravel walk, as at Terragles, for our taste; but not a weed, nor a decayed shoot or leaf, was to be found; the walls were well covered with trees, neatly trained, and the gooseberry bushes judiciously pruned. It is gratifying to see a gardener, who, like Mr. Webster, has been forty years in his situation, not relaxing in any of his duties, and more especially in those of order and neatness.

Gilston Castle, which, when we before saw it, in 1805, then nearly completed, appeared to be in a naked, barren, hilly country, is now embosomed in woods, and all the hills are more or less covered with thriving plantations.

St. Mary's Isle is overgrown with wood, but with wood so beautiful, both as to the individual trees and shrubs, and their disposition in groups and masses, that we do not wonder at there being a reluctance to thin them out. The grounds have, however, one unpardonable fault, and that is, they are deficient in exotics; without which, when laid out in the natural style, there can be no gardenesque. At the time these grounds were planted, the gardenesque and the picturesque may be said to have been the same thing; that is, plantations formed in a picturesque or natural manner were then as characteristic of the grounds of the country residence of a man of taste, as plantations in the geometrical style with straight rows and avenues, characterised similar residences half a century before. Both styles were gardenesque when it was their turn to be in fashion; but neither being at present exclusively the mode, the characteristic of the gardenesque is now the prevalence of exotic trees and shrubs. This change in taste shows a real advance in intellectual enjoyment; because it carries with it the associations connected with genera and species, in addition to those of form, colour, and combination. In the kitchen-garden, at St. Mary's Isle, we found most abundant crops of grapes and peaches; the vine border, as we were informed by our esteemed friend, Mr. Nesbitt, had not been dug or stirred with the fork since we last saw it, twenty-six years ago.

Cally House is a plain granite building, in a park of recent formation, of great extent, of considerable variety of surface, and abundantly clothed with wood. The situation of the house, near an estuary formed by the mouth of the river Fleet, is very fine; but, unfortunately, the entrance front is on the wrong side, and none of the windows of the principal rooms look towards the river. All the works executed about Cally and the village of Gatehouse appear to be of the most substantial kind; but they are not all in that high and finished taste that we expected to find them. The masses of trees in the park are in many places too formal and unconnected; and there are single trees which neither group with them nor with one another. Much might be done in this park by the introduction, near the masses, of a few small groups of trees of different sizes, with thorns and other shrubs; by opening the outline of the masses; and, above all, by thinning them. The scenery about the house, and the views, from its entrance front, of the richly wooded country beyond the river, with the mountains and their rocky summits on the one hand, and the sea on the other, are unequalled by any thing of the kind in this part of the country.

The approach to Blairquhan, on the banks of the river Girvan, is remarkably fine. The house is new, in a highly enriched Gothic style: and the grounds, forming part of the valley of the Girvan, are backed on all sides by rising hills and mountains. On the whole, Blairquhan is by nature a noble place; but there is no proper connection between the pleasure-ground and the house; so that, although nature and architecture have both done much, yet the details are very defective. A great deal of pains seems to have been taken in hoeing and raking some miles of approach road, which would have been much better left in its firm state, and the weeds pulled up by hand. Indeed, on such a road, in constant use, few weeds will be found to grow; and therefore nothing should be done to disturb the firmness of the surface, and infringe on its character of mellowness and age. We are the more particular on this head, because the practice of raking walks, and having them covered with loose gravel, instead of gravel firmly rolled, seems, as already observed, to be a prevailing sin in the gardens in the west of Scotland. The gardener here is quite an original character, well versed in his profession, but very hard worked; the strength allowed him being insufficient to keep what is under his care as it ought to be. The addition of one man to the yearly strength kept would make all the difference between a harassed mind, and a place always on the verge of disorder; and a mind at ease, not so fatigued with the work of the day as to be unable to read at night, and a place in high keeping. But there is evidently, among the Scottish country gentlemen, either a great want of taste, or a great want of means; perhaps both.

Culzean Castle is a scattered building, in the mixed style of the architect Adams, placed on the brow of an irregular lofty cliff washed by the sea. Nothing can exceed the grandeur of the situation; and the buildings, taking them as a whole, and speaking without reference to the correctness of architectural details, are varied and picturesque. None of the approaches are, however, judiciously conducted either for displaying the beauties of the place, or for easy conveyance. There is a great extent of garden scenery, and a very large kitchen-garden. The whole is remarkably well kept by the gardener, Mr. Heppell, though evidently with the greatest difficulty, from a deficiency of hands. Mr. Heppell had in his hot-house crops of pines, grapes, and peaches, which were not surpassed by any we saw in Scotland: indeed, taking size, quantity, and flavour jointly into consideration, we think they were the best we saw any where north of Knowlesley Park. But that which, in respect to horticulture, renders the kitchen-garden at Culzean more especially worthy of attention, is, the excellent crops of grapes obtained in the pine stoves, in the manner which we have noticed (Vol. VII. p. 411. and p. 539.) as practised at Trentham, Tatton Park, and other places in England. The grass edgings to the walks, and groups of flowers on the lawn, were, generally speaking, entirely to our taste. The young plantations were in a ruinous state, for want of thinning, but we have no room here for details.

Barganny has for the last 25 years been the scene of extensive improvements in the way of road making, draining, planting, &c. The kitchen-garden, laid out by Mr. Hay, has flued walls and hot-houses. It occupies, together with the pleasure-ground which surrounds it, about 13 acres. The whole is most economically and judiciously managed by Mr. Dodd, who, in the absence of the family, cannot, of course, attend to high keeping.

Kilkerran is remarkable for an excellent kitchen-garden, also by Mr. Hay, and for a singularly romantic wooded dingle. The rock through which the stream has furrowed its course down the face of a steep hill is of red sandstone; and the cavernous sinuosities, waterfalls, and cascades are of endless variety. Among the trees are some magnificent silver firs, but either more exotics are wanted to render the dell sufficiently gardenesque, or those which are there ought to be removed, in order to render it perfectly natural. There is an excellent gardener's house, and the garden is admirably managed by Mr. Cullen, a reading gardener, who is fully aware of the importance of not digging fruit-tree borders, or paring the grass edgings of the walks.

We must pass over a number of mansions, to notice *Auchincruive*, a grand and romantic place on the banks of the Ayr. The house is placed in a most striking situation, but is not very fortunate with regard to the road by which it is approached. The kitchen-garden, as such, is badly situated; but, combining, as it does, architectural and Italian-like scenery, with the culture of fruits and flowers, it has an excellent general effect, and suits the style of scenery amidst which it is placed.

There is a broad walk by the margin of the river, which is remarkably fine; and the place, when the family shall again reside there, and it be kept in high order, will be one of the first in the west of Scotland. Mr. Skinner, the gardener, is a man of a very superior order of mind, and nothing in the course of our tour gratified us more than to hear the manner in which he spoke of his employer; who, indeed, from his general character in the county, must be a man of a great and liberal mind, and of enlightened benevolence.

Caprington Castle has lately received great additions; and a number of trees have been transplanted in the grounds, according to Sir Henry Steuart's manner; but they are too much dotted instead of being grouped. We were very sorry to find here, that the gardener had recently had his cow taken from him; and we saw the carpenters at work fitting up his cow-house as a fruit-room, after having, for nearly 25 years, lodged a cow for the same individual, the gardener. What a reward for a faithful servant of 25 years' standing!

Most substantial gardening erections, stable offices, and a commodious and handsome gardener's house, have been lately erected at *Williamsfield*, by Mrs. Farley, a lady who, as we were informed, possesses great kindness and liberality of disposition. We regretted to see the park spoiled by dotting; but perhaps it is not yet too late: and if Mr. Cooper, the gardener, a most willing and excellent man, will send us a correct plan of the trees, and other objects, as they now stand, we will return it to him gratis, with corrections.

The grounds at *Loudon Castle* are greatly improved, in as far as respects planting and farming; but the full share of expense and attention does not seem to have been devoted to the kitchen-garden and pleasure-ground, probably from the family seldom or never residing there.

Eglinton Castle is placed in a dull flat situation, surrounded by abundance of wood, including some very large beeches. There is an extensive kitchen-garden, and many hundred feet of hot-houses; but, in consequence of the minority of the owner, the grounds are not kept up as they ought to be. There is a gardener's house, all frontage and show, but very small and inconvenient within.

Ardgowan is finely situated on a knoll, which has once been the highest point of an island in the Clyde. In the front is a terrace-walk, commanding extensive views; but we do not like the placing of the clumps on the lawn; because the principle of a *sufficient reason* is not obvious. The kitchen-garden is in a low damp situation, and is now undergoing a system of drainage.

At *Erskine*, a house in the church Gothic style, and on a most extensive scale, has been set down in a remarkably fine situation on the Clyde. We doubt if it will ever be occupied, as the day for building such houses, either in Scotland or England, is decidedly gone by. The kitchen-garden here is new, and one of the best which we have any where seen. The gardener, Mr. Shiells, has received more prizes for superior fruits and culinary productions than any gardener in the west of Scotland. Here, as at most of the mansion residences above enumerated, the fruit is sold.

Castle Semple is a fine old place, with a magnificent lake, and extensive woods. Some of the oaks, chestnuts, ashes, beeches, sycamores, birches, silver and spruce firs, &c., are remarkably large. The kitchen-garden, by Mr. Hay, is in his most elaborate manner, with water-pipes in the walls, &c.; but we cannot approve of attempting circular work in wooden hot-houses, on account of the expense, and the obstruction of light produced by the converging rafters. Metal houses, however, are not yet popular in Scotland. The gardens here are well managed, by our correspondent, Mr. Lauder, who has the good fortune to be under an excellent master and mistress, Colonel and Mrs. Harvey.

Of Villa Residences we can only notice a few, remarkable either for their beauty, curiosity, garden culture, or keeping.

Castle Dykes is on a romantic spot, overlooking the Nith and the town of Dumfries. The surface is broken, irregular, and rocky; partly from its having been the site of an old castle, and partly from its having served for many years as a quarry to supply red sandstone for the buildings of Dumfries. Nature and accident supplied a few old trees; and the late Mr. Stott, the proprietor, who formed the place, spared no expense in building and gardening, that could contribute towards rendering it a little wonder of romantic beauty, as well as a comfortable and elegant residence. This gentleman's widow, now in America, had a taste for art and also for botany; and to this circumstance may be traced many beauties in the grounds, which it is probable would not otherwise have found a place there, and many rare trees and shrubs not common in this part of Scotland. Mrs. Stott had an excellent collection of house exotics, the greater part of which, however, we were told, she took with her to America. The kitchen-garden is placed in the bottom of what was one of the largest quarries reduced to a level, and covered with suitable soil, brought from a distance. This level is in the form of an oval, and on three sides of it there are steep grass banks, along the top of which is a terrace walk, whence the eye looks down on the garden on one side, and to the pleasure-ground, scenery, and distant country on the other. A great mistake committed here, in our opinion, is that of covering these steep banks with turf, instead of clothing them with low shrubs, such as rhododendrons, and all the genera belonging to that order which do not grow above 4 or 5 ft. high. The effect produced by these shrubs would have been delightful: whereas a grassy bank, too steep to be walked on, not being part of a regular terrace, is of no use in adding to the effect, and is commonplace in itself. The trouble of mowing this exceedingly steep bank, we were told, was very great; and the grass, notwithstanding, looked coarse and thin. The walls, offices, and buildings of every description are executed in the most substantial manner, and with an extraordinary degree of attention to neatness, and to the perfection of minute details. Formerly, the whole place was kept in the very highest order; even the floors of the pigsties, we were informed, were scrubbed with white sandstone, like door-steps; but at present, though still respectable in point of neatness, the walks in the lawn have sunk too deep for the grass edgings; the trees and shrubs have become crowded, and the grass is less frequently mown than it ought to be.

Hannayfield is remarkable for having been laid out by the owner, in a sort of geometric style peculiar to himself. The house, by Mr. Newall, is commodious and most complete in all its details. It commands the grandest and most Italian-like views of any place in the neighbourhood of Dumfries. The grass edgings are, however, pared, and the gravel raked to a degree that filled us with horror. We found here every disposition in the proprietor to make a fine place, except that of taking advice; and he may be said, in consequence, to have quacked himself. After the kindness which we experienced from Mr. Hannay, it does seem cruel to find fault; but we have too much respect both for him and ourselves to deal in any thing but truth.

At *Dalscairth*, we were surprised to find some green painted iron bridges, an artificial ruin, and other things, belonging, as we thought, exclusively to the cockney school.

Goldielee, a secluded spot, backed by high wooded mountains, which form at the same time a background to Dalscairth, is in a state of neglect.

St. Peter's, the residence of the Rev. A. Carruthers, at the Gothic chapel, Dalbeattie, is a gem of beauty, formed out of an aggregation of granite boulders (large rounded fragments of stone found on the surface of the soil) and an immense mass of that rock. By covering part of the rock with earth, leading a winding walk around and over and through among the boulders, and introducing rare and curious plants and shrubs, especially climbers and trailers, a great interest is created as well by the variety of the near objects, as by the character of the distant views. In some places fruit trees and culinary vegetables are introduced in plots, where the soil is sufficiently deep for their growth; and, after following the mazes of the winding path in its various ascents and descents, we have the agreeable contrast of returning by a straight walk by the side of a neatly clipped hedge, which forms the boundary to a paddock. So highly do we think of Mr. Carruthers's taste in landscape-gardening, that we would strongly recommend the neighbouring proprietors, who may propose executing any thing belonging to that art, to endeavour to obtain his opinion; as we feel confident that he would only recommend what every man of taste must approve. We hope our much esteemed friend (if we may take the liberty of so designating a man after our own heart) will excuse our having made these remarks.

Bargally, at the head of a most lovely narrow valley, between hills and mountains whose sides are covered with wood, is not only interesting from its natural beauty, but from the accident of its having been the residence, a hundred years ago, of Sir Robert Heron, one of the greatest botanists of his country and time. He planted many rare trees, of which some fine specimens still remain, and which we shall hereafter describe.

In the suburbs of Paisley there are some villas laid out in imitation of the newest taste; but which are liable to all the objections which we have stated in preceding articles. Whoever knows these villas, and will look at fig. 72. Vol. VII. p. 401., will understand what we mean.

Kirk-Alloway Cottage, the residence of Mr. Auld, well known both in England and Scotland for the interest which he has taken in the sculptor Thom, and in every thing relating to Burns, and more especially for being the principal cause of the completion of his monument, is situated close by the new bridge of Doon. Within the grounds is Mungo's Well, so well known to the admirers of the poem "Tam o' Shanter;" and, as the public take a great interest in this spot, which the genius of Burns has rendered classic ground, Mr. Auld allows persons of all classes to pass through his garden to the well. One of the neighbouring gentlemen, on being told this, remonstrated with Mr. Auld on the danger of getting his garden robbed, and was astonished at being informed, that in no one instance had it ever happened that a single flower or fruit had been touched. The laird was no less astonished at the idea of treating his poorer fellow-countrymen with kindness, than he was at their returning this kindness with gratitude.

Crosslee Cottage, near Johnstone, though of less extent than any of the villas we have mentioned, being, in fact, more a cottage than a villa, is a gem as unique in its way as Castle Dykes or St. Peter's. The cottage is placed on the top of a bank upwards of 200 ft. above the river Gryffe, just at a bend in the stream, and the ground slopes steeply down from the house to a narrow holm, which skirts the margin of the water. On the opposite side the bank is still higher and steeper, and it is covered with old wood from the water's edge. The sky outline of these trees, owing to the bend of the river, seems here to rise into a hill, declining both up and down the stream; and conspiring, as it were, with the bend of the river, to mark out the situation for the cottage. The portion of lawn in front of the dwelling is very small, but it contains a selection of beauties and rarities such as we have not elsewhere seen in Scotland. At the end of the house, the lawn joins a terrace, from which steps descend to another, both supported by masonry; and below is a hanging fruit-garden. There are two other gardens; but we have no time to enter into details. On the whole, Crosslee Cottage is a fine example of the *multum in parvo* in ornamental gardening; and, of all the places which we saw in Scotland, it has left the strongest impression on our mind: the next strongest was produced by Auchincruive.

Cottage Gardens. — We cannot say much for these in the west of Scotland. They are small, and, with the exception of some about Paisley and other manufacturing places, scarcely any thing is grown in them but borecole and potatoes: onions and beans are not uncommon, but peas and turnips are rare; and kidneybeans (one of the most profitable of summer vegetables) are scarcely ever grown. At the village of Catrine, in addition to the small gardens behind the cottages or street houses, there are several acres feued out, somewhat in the manner of the town gardens of Birmingham and Lancaster; and in these a variety of culinary vegetables, flowers, and the smaller fruits, are cultivated with care. The gardens attached to the lodges at gentlemen's seats must not be considered as included in the rude ones above alluded to. These being frequently the gardens of professional gardeners, and in all cases more or less under their eye, are generally ornamented with flowers, and the houses belonging to them with creepers. They are not, however, always very profitable gardens to the possessors, any more than the lodges which they are meant to adorn are always comfortable dwellings. That part of these lodge gardens where kitchen crops are grown is in general behind the cottage, overshaded by the branches of trees above, and impoverished by their roots beneath. Much of what looks well to a stranger, in the dwellings and appurtenances of those immediately depending on the wealthy classes, is only surface comfort; and, before any thing better can arrive, the rich man must learn to sympathise with the whole of human nature, or the poor man to protect himself.

Art. II. *Observations on several Gardens in England.* By Mr. W. Sanders.

(*Continued from* Vol. VIII. p. 551.)

Trafalgar House, the Seat of Earl Nelson. — *July* 3. Situated on the opposite bank of the river Avon to Longford Castle. The park is well wooded, and contains some fine old timber. The mansion is of brick, and stands on an eminence, which commands a fine and picturesque view of a large tract of country, with the river winding its way in the distance on the south-western side. The idea struck my mind how easily the whole adjacent scenery might be appropriated as its own by a little judicious planting, to the total exclusion of the now partially to be seen seats in the immediate neighbourhood, and the opening of vistas where most desirable. A hint or two from Sir Henry Steuart would not be unserviceable here, where nature seems to be waiting for a finishing touch. I am persuaded that a few bold strokes from a masterly genius would go far to raise this place to no mean station among its compeers. The gardens have not the good fortune to boast of an advantageous site, having been crammed away, as it were, in a dungeon, as not worth caring for; being "*squatted*" down in a low marshy spot by the side of the river, thus almost precluding the possibility of obtaining any thing like a good tree, much more a crop of the finer stone fruits, and thereby doing away with one great source of gratification from the garden, while, from the want of such produce, the poor gardener is too often brought in guilty, in the judgment of his master. An exceedingly good situation might have been chosen for a kitchen-garden within 500 yards of the present site, and one at the same time sufficiently removed from the mansion to have been entirely excluded from the view; but, through some oversight, or want of skill, in the outset, a great expense has been incurred in the building of walls, hot-houses, sheds, &c., and all to little or no purpose. The place was in tolerable keeping, considering the little assistance that was allowed to the gardener; but the present proprietor, I believe, is not distinguished for any great love of horticulture.

Norman Court, the Residence of Baring Wall, Esq. — *July* 3. This is an extremely well kept place; the gardens and grounds generally indicating that no small degree of attention is bestowed upon them: but, indeed, under the care of such an intelligent man as Mr. Hughes, with any thing like a moderate share of support, they could not fail to present a scene of order and neatness. Here I saw some remarkably fine clusters of white muscadine grapes, far surpassing any I have before observed, either in point of handsome cluster or large berry. Mr. Hughes has got a peculiarly good method in managing his Alpine strawberries, by which he retards their bearing to August, when his crop is fit for the table, and continues so to the middle of November. This he accomplishes by plucking off the first and second show of flower-stems, and allowing the third to come to perfection. To prevent the rain from splashing the dirt upon the fruit, flint stones are closely laid underneath the foliage, which not only keeps the fruit dry and clean, but, I doubt not, accelerates its ripening. In connection with the flower-garden, which is tastefully laid out, and well stocked with a choice collection of showy and rare plants, there are some very romantic walks leading through the woods adjoining the mansion, whence, occasionally, a beautiful peep of rich country opens to the view, varied by the thickly wooded rising ground to the west. The stove and conservatory are well filled by a goodly number of excellent plants in high health and keeping. The Cáctus family is well managed. Mr. Hughes succeeds in flowering Cèreus truncàtus better than I have generally seen it, and at almost any season of the year. He places the plants immediately under the glass roof of the stove, where they have light and heat in abundance; and, having various sets of them in preparation, he thus obtains a prolonged season of this beautiful flower.

July 5. ——— *Batts, Esq.*, has a small place on the west bank of the Avon. The gardens here possess very little to attract, with the exception of some good fig trees in full bearing, and a house of superior black Hamburgh grapes. The frames contained a good crop of melons, many of them very large. In the pleasure-grounds I observed some very fine specimens of cedars, larches, and pines.

After leaving this place, I called at *Colonel Baker's*, in Salisbury; a place which, before entering it, one might suppose, could present nothing attractive, from its being apparently situated in the centre of the city: but the contrary is the case; for you are ushered into a large piece of ground, laid out with great taste as a pleasure-garden, and so arranged as that all the surrounding objects, except the beautiful spire of the cathedral, are completely hid, so that one may at once fancy oneself in the country. This place was then under the able direction of the late Mr. Shennan, formerly gardener at Gunnersbury House, a well known pine-grower, and a man of very superior abilities. His pines were looking extremely well when I saw them; and we had some very handsome fruit in various stages of growth. Several specimens of hot-house climbers were in high perfection; such as Combrètum purpùreum, Passiflòra Bonapártea, &c. Some specimens of Ixòra coccínea were also well worthy of notice. The grounds were bespangled with ornamental and rare plants; but the kitchen-garden department was confined to a small space, and evidently looked on as of minor importance. The crops, &c., were, however, by no means deficient, and the whole place was characterised by neat and orderly keeping. I remain, Sir, &c.

Wm. Sanders.

Laurence Hill Nursery, Bristol, Dec. 15. 1832.

Art. III. *A Visit to the Gardens of T. A. Knight, Esq.* By Mr. John Pearson.

Sir,

Knowing you are anxious to receive reports of different gardens, I beg to inform you that I again visited Downton Castle, September 7. Among the many things worthy of notice, Mr. Knight showed me his Persian melons. Those grown in pots are certainly very good; but those that are grown in (what I shall call) his patent melon pit are much the best. This pit is built on the plan of heating cold air by passing it through flues heated with dung linings, the principle of which plan Mr. Knight has before described. I mention it here, because I think the melons will surpass those grown in pots, owing to the roots of the plants, in the former case, not being exposed to the variations of the atmosphere of the house, pit, &c.

Mr. Knight's pines are looking very well: he considers them much better flavoured than those grown in the usual way. He cuts them when quite green (that is, before they show the least appearance of colour), as they are the best flavoured at that time, when grown according to Mr. Knight's plan. I tasted a fruit of the green olive pine, which was as green as a leek, but of the finest flavour I ever tasted. At the same time, I have no hesitation in saying that pines grown in the usual way are never better than when just beginning "to turn," as gardeners term it. Mr. Knight has quantities of seedling pears, plums, potatoes, hybrid melons, &c.; but what I wish more particularly to inform my brother-gardeners of are some seedling nectarines, which, I think, ought to be in every gentleman's garden as soon as it is possible for them to be procured.

The Downton nectarine is undoubtedly the best of these seedlings: it is a most beautiful fruit, large in size, oblong in shape, firm in the flesh, excellent in flavour, and with the stone small. The next in quality is the Althorp seedling; a very good nectarine, but not so large as the Downton: it more resembles the old Elruge, but is not so stringy in the flesh as that long-esteemed nectarine. There is another, the name of which I have forgotten (not having taken any notes), which is nearly equal to the Downton in flavour, but differs widely in shape.

Although I have thus volunteered my humble opinion on these nectarines, I feel assured that gardeners will be very fond of them, from the good appearance of the trees on the walls; and that gentlemen and ladies will appreciate their excellence from their most delicious flavour, which far surpasses the Murrey, and all the old favourites.

I am, Sir, yours, &c.
Kinlet Hall Gardens, Sept. 1832. JOHN PEARSON.

ART. IV. *Horticultural Jottanda of a recent Continental Tour.*

By ROBERT MALLET, Jun. Esq.

(*Continued from* Vol. VIII. p. 526.)

ON looking over my last jottanda, I find some corrections to make, which I send you *, and many omissions, which I would now fill up, but that I should have to bring the reader back to where we started. I propose, however, when we have finished our rapid travels in company, if so it should happen, to give a slight sketch of the statistics of each country passed over, so far as they are applicable to the general subject of this Magazine, in which such vacancies can be supplied.

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* Page 521. line 8. from the bottom, for "expeditious" read "expeditus" (*Latin*, light-armed). P. 521. l. 6. from the bottom, for "these" read "this." P. 523. l. 11. for "engrafted" read "ungrafted." P. 523. l. 25. for "wonders" read "wondrous." P. 525. l. 14., "*Trois Journées*" is properly translated "three days of battle." P. 526. l. 19. for "stormy" read "snowy." P. 526. l. 25. for "seventy feet deep" read "seventeen feet deep."

Having arrived at Geneva, I shall, before proceeding farther, give the following list of such plants as I observed by the wayside, on the road from Paris to that city, by Dijon, &c. Most of them I was enabled to collect specimens of by walking up the hills; which may always be done provided the traveller takes his place on the outside, or in the *coupée*, and secures the good offices of the *conducteur* by a small gratuity. Some of the plants, however, I cannot be absolutely certain of, as far as regards species, having only seen them from the diligence; and plants are not things that "he who runs may read."

Santolìna incàna, *T*ussilàgo alpìna, *C*acàlia alpìna, *A*cánthus móllis; *A*'llium, two or three species, not in flower; Gladìolus commùnis; *L*áthyrus tuberòsus, also seen in cultivation for its large and esculent tubers; *S*pártium *j*únceum; *S*èdum, many species, particularly *A*nacámpseros and villòsum; *S*empervìvum arachnöídeum, *A*'nthemis *P*yrèthrum, Melíssa officinàlis, Campánula grandiflòra [Platycòdon *A. Dec.* grandiflòrum *A. Dec.*], C. Spéculum [Speculària *A. Dec.* Spéculum *A. Dec.*], and another species, which I could not recognise; Diánthus barbàtus, *R*hododéndron ferrugíneum (on Jura), Nigélla arvénsis, *L*áthyrus praténsis, *A*chillè*a* *M*illefòlium, *M*edicàgo lupulìna (very common), *C*ichòrium *I*'ntybus, *A*conìtum Napéllus, Adònis vernàlis, *B*ryònia álba, *J*uníperus *S*abìna, *J*. *O*xýcedrus, *C*lématis Viórna, *T*rifòlium rèpens, *P*lantàgo lanceolàta.

There was also occasionally, but rarely, a plant which I took for an *E*'chium, but of which I was unable to collect a specimen.

Such are a few of the plants from the immense flora of France; which are not given as a complete list of those to be found between Paris and Geneva, but merely to show the young gardener that some botanical knowledge may be snatched up even while whirling along on the diligence.

We now return to Geneva. The ground on which the town is built is hilly, which makes most of the streets tortuous and *pénible* [tiring]. The houses are high, from five to six stories in general, and are not unfrequently deformed by shed roof arcades, supported by clumsy wooden posts, which reach to the top of the house; most of the streets are rather narrow; the pavement, however, is good.

There are numerous fountains, supplied by fourteen pumps, each of 11 in. diameter, wrought by the rushing waters of the Rhone, the whole of the machinery of which is made of wood. Yet they discharge water at the height of 100 ft. The water-wheel, which is, of course, undershot, is enclosed in a dark wooden shed, standing, as the whole structure does, on wooden piles in the water. The only light admitted into this shed is through and a little above the surface of the water; and the flashing and foaming of the bright blue water in the darksome gloom produces an effect almost magical.

Two wooden bridges cross the Rhone, which divides the town into two parts, and, with the adjacent extremity of Lake Leman, insulates one of them.

The principal street runs nearly parallel with one of these branches, and near it a new quay is now being built for the small craft, which ply upon the lake, to moor at. From this lower part of the town there is but little view: but, on ascending to the terrace walks, at the most elevated part possible, the view is extremely magnificent. It overlooks the whole city with its picturesque and scattered roofs, and its cathedral built on the spot where once stood a pagan temple of the sun. The deep blue lake, stretching until the villages on its beautiful shores dip below the horizon; and with an atmosphere so pure, that village and church, tower and hamlet, piercing through the forestry, are seen as clear at forty miles' distance as at five in our murkier clime.

Jura's lofty ridge, clothed almost throughout with dark pine forests, on one side, on the other the everlasting Alps, enwrapped in clouds and snow, embrace the matchless landscape. Between them and the lake, on which many a sail expands its placid wing, terraces of nature's sloping smile with every variety of sylvan beauty and rural elegance, and rejoice in an educated gentry and an intellectual and contented peasantry.

Geneva is wholly surrounded with walls and trenches, across which, in one place, a light and elegant wire suspension bridge is built; in the neighbourhood of which is the observatory, a small building, surmounted by two hemispherical domes of tin. The use of tin, that is, tinned sheet iron, is universal throughout Switzerland, for covering roofs, for eave shoots, trunks, &c.; and nothing can show more fully the exquisite purity and great dryness of the air, than that, in such exposed situations, it retains its fine silvery lustre for years. By a mistaken and miserable parsimony, tin has been of late occasionally used for such purposes in these countries, even for government works, and in a short time presents nothing but a few shreds of rusty iron.

Geneva has always been the peculiar abode of political and religious freedom; and, even now, the inhabitants approach nearer to those healthy and peculiarly English habits of mind, which free institutions produce, than perhaps any other people on the Continent.

An admirable system of public instruction and public reward is, and has long been, in operation; and its effects are manifest even on the lowest orders.

In fine, "were the world all before me where to choose" to anchor my bark of life, that choice should be at Geneva.

In this rapid sketch, we must pass over any description of its library, with the homilies of St. Augustine, written on papyrus of the sixth century, its museum, with all the labours of Saussure and De Luc, and all the tempting glories of its elegant *bijouterie*, &c., to make an excursion to Ferney, and visit all that remains of the abode of him

> "Who was all fire and fickleness; a child
> Most mutable in wishes; but, in mind,
> A wit as various, gay, grave, sage, or wild,—
> Historian, bard, philosopher combined."

— need I say, of Voltaire?

The way from Geneva is through a rich and highly cultivated country; corn and pasture, chestnuts and orchards, and here and there a vine or fig tree, embroider the face of nature into a garden. Well kept fences and hedgerows skirt the shady roads, which not a little resemble some of the finer parts of our own country. The house in which Voltaire so long resided, where he drew around him the learned and the noble of every nation, and where he received the ambassadors of the Russian empress, is now a tenantless mansion, the desolate goal of travelling curiosity.

"Decay's effacing fingers" press heavily on all around: the house is disfurnished, save of some mouldy pictures, a few chairs and tables, and a bed, said to have been Voltaire's. The grounds were laid out in the old French style of gardening. A straight avenue, many of the trees of which have fallen to decay, leads to the house.

The garden consists at present but of a long straight *berceau*[bower]walk of beeches, rampant and unclipped, where many of those works were composed which, while they delighted by their wit, poisoned the very sources of human morals. This walk, which commands a noble view of the high Alps, was the favourite musing-place of Voltaire.

Near the house is a circular fountain basin, half choked with rubbish and leaves, whose jet d'eau has long ceased to murmur; a dark green moss covering every walk, and the old *bosquet* [thicket] is a jungle of weeds.

The reflections suggested by visiting this spot are any thing but pleasant. Perhaps no man ever attained greater literary popularity during his lifetime than Voltaire: in fact, his death was caused by overwhelming admiration and public honours; yet few men's memories are dwelt on with less sympathy, or fewer praises. Among all that deserves reprehension, it is consolatory to find some traits related that bespeak benevolence of disposition. All that deserves praise in his voluminous writings is his poignant wit, and the elegant speciousness with which he was able to clothe the weakest sophistry. But he has made no discoveries, and has added nothing to the stock of human knowledge; and, however he may have been instrumental in promoting the misery, it is certain he has devised nothing to increase the happiness, of man. [Our own opinion of Voltaire, and of the good done by him, differs widely from that of our correspondent.]

A steam-boat now plies upon Lake Leman, from and to Geneva, touching at most of the principal towns upon the shores of this magnificent sheet of water. This lake, certainly the most beautiful and one of the most extensive in Europe, is of nearly the shape of a half-moon, the convex side of which is towards the north. It is about eighteen leagues in length, and four in breadth; its depth varies from 40 ft. to 900 ft.; its height above the level of the sea is about 1000 ft. It receives the waters of upwards of forty rivers, of which the Rhone is the largest. Owing to its great average depth, it never freezes, except near the edge in very severe winters. Similar agitations to those once observed in Loch Tay, in Scotland, have been seen in it; namely, sudden rising and falling of the waters, at particular spots, above and below their usual level, succeeded by oscillations, until they return to their ordinary situations. This phenomenon may arise either from landslips, so to speak, taking place under the water; that is to say, large masses of debris detached by the water falling from the sides of subaqueous precipices, or from the water suddenly forcing its way into large cavities or subaqueous caverns, which, from the nature of the strata, are not unlikely to exist in Lake Leman. It contains a great many species of fish. I have not had an opportunity of examining the washes of its shores; but from their mineral composition, at least on the Jura side, they do not seem likely to afford a very rich botanical harvest.

There is but a single islet in the lake, so small as to be probably but the pinnacle of an immerged mountain; two or three bushes grow on it, nevertheless: it is nearly opposite the rocks of La Meilleraye.

It was a morning of exulting sunshine and loveliness when we sailed from Geneva for Villeneuve, and so for some time it remained; but alas! fine weather, that most essential of all comforts to the traveller, soon deserted us. Behind the snowy Alps, that relieved themselves in dazzling whiteness, against the clear blue sky, a colossal nimbus, dark as despair, gradually rose, with ragged, whitish, thundery-looking rack sweeping about beneath it. Up it rose, and, with the rapidity of the lowering of the footlights in a theatre, it threw a cold gloominess over the before sunny landscape. The clear blue lake became black as ink. The great cloud now covered the whole heaven. The rack seemed violently agitated over the crest of Jura. A few large heavy spitting drops of rain fell upon the deck of the steamer; a bright blinding flash of lightning, and almost instantly a deafening thunder, that seemed to shake the very timbers of the ship, burst above us, and rumbled away in reiterated reverberations from crag to crag.

——— "Quo maxima motu
Terra tremit, fugêre feræ, et mortalia corda
Per gentes humilis stravit pavor."

"Earth feels the motions of her angry god:
Her entrails tremble, and her mountains nod;
And flying beasts in forests seek abode:
Deep horror seizes every human breast;
Their pride is humbled, and their fear confess'd."
Dryden's trans.

Down came the rain; and such rain as, in force and heaviness, I never saw equalled; —

—— "Fervetque fretis spirantibus æquor."
"And rocks the bellowing voice of boiling seas rebound."
Dryden's trans.

After about an hour, its extreme violence subsided; the clouds descended gradually to about within 100 ft. of the surface of the lake, and there they hung for the rest of the day, copiously distilling a thick, small, drenching rain, something of the Scotch mist order.

However, underneath this pluviose canopy, and that of an umbrella, we were enabled to see, though not to advantage, the many picturesque châteaus and villages past which we swept: — Copet, Lausanne, Vevay, Clarens; names ever associated with the undying fame of De Staël, Gibbon, and Rousseau.

"Lake Leman lies by Chillon's walls:
A thousand feet in depth below
Its massy waters meet and flow;
Thus much the fathom line was sent
From Chillon's snow-white battlement,
Which round about the wave enthralls;"

and beyond which the beetling brow of the mountain overhangs, in almost perpendicular abruptness, yet clothed, for the most part, with a rich verdure of ivy and procumbent shrubs. Small seems the height of that lofty "donjon," when matched against the loftier rock, that seems to frown haughtily upon it, the ancient abode of feudal tyranny, where once the magnanimous and patriotic Bonnivard chafed in unjust imprisonment.

We arrived at Villeneuve tolerably soaked, and having had the comfortable assurance from one of those oracular personages sometimes met with, that there was no chance of the rain giving over for a week at least, and that there was small chance of our being able to get into Italy, as the Simplon was mined, and an Austrian army of observation on the Italian side. We shall see how these matters turned out by and by. I mention this, as a caution to young travellers like myself not to swallow all they hear, or to rule their actions by the gossip of every chance *camerado* [companion].

From Villeneuve a singular conveyance, intended as a stage coach, but very like a modern hearse, with leathern sides, and benching along them, and moreover a kind of narrow table along the middle, which seemed to concentrate the rain that poured through the roof upon our knees, started with us for the little town of Bex, pronounced *Bay*, and celebrated for its salt brine springs, which, as a wag once said, must be *bay* salt. The road lay through a fine valley, completely flooded over, the trees alone standing out of the muddy water; and the road so obliterated, that we more than once ran the danger of being upset. Arrived at Bex, we hired a calash to carry us on to St. Maurice, which we arrived at just as it became dark. We stopped to change our horses in the main street; and in a second or two a party of twelve or fourteen men, with lanterns and poles, accosted us, with the pleasant intelligence, that the torrents had broken up the road to Martigny in many places, and that the Rhone had so uprooted and overflowed it, near the Pisse-Vache, as to render it extremely dangerous; and they wished to know whether we would have their escort.

After endeavouring to find out what were the real difficulties of the way, we agreed to their offer; and, having obtained our change of steeds, we began to move slowly on, accompanied by our jacks-o'-the-lantern. We had not proceeded above a mile, when the noise of rushing water began to be heard, and presently we encountered the first, and, as it afterwards turned out, the worst torrent. At a place where the road was cut upon the declivity of a hill, which on one side rapidly declined, but on the other was a gentle but broken slope, a tremendous rain torrent was discharging itself over the road. It had already carried above two feet deep of shining slaty stone out over the road for the length of fifty or sixty paces; and in some places it had excavated deep hollows. At the other side of the road the water fell with prodigious noise over the abrupt bank; so that, in fact, it was the head of a temporary cataract.

Some of the guides seized the horses by their heads; the rest stood fast at each side of the carriage; the driver whipped the frightened animals; and we rushed in. But, before we had passed over ten feet, one of the wheels sunk into a gully, so deep as to require the utmost exertions of the guides to prevent its upsetting; which, had it happened, we and it would assuredly have been washed down the abrupt bank over which the torrent rolled. For some time the carriage remained immovable, and was every moment becoming less mobile, from the wedging of the stones into the spokes of the wheels, which we could hear over the noise of the water rattling and clashing along the bottom. The torrent here was of a depth and force that rendered standing in it difficult, and falling destruction; so that our unstable equilibrium in our carriage, lying nearly on its beam ends, in the momentary expectation of a ducking, was by no means agreeable. However, a sudden and united exertion of our guides and horses dragged us out of the gully, and we got in a second or two out of the main rush, and soon after on dry land again. We passed two or three similar, but less formidable torrents, before we came to where the whole breadth of the valley seemed, as far as we could judge by the light, or rather the darkness, to be entirely flooded. The rain had now ceased; and through the water we were dragged, the guides poking out the road with lantern and pole. In a short time we began to hear the hoarse brayings of the swollen Pisse-Vache. The guides, whenever they communicated with one another, spoke *patois*, which was unintelligible to us; but it soon became apparent, by their hesitation, that they had lost the road track, which, I suppose, was, as roads in the Swiss valleys usually are, without side fences. However, we got on without accident, if not without danger, until we came close opposite the cataract; and then the water became so deep that we came to a full stop, while the guides endeavoured to find out the track. It was still very dark; but on our right, apparently at about 150 yards' distance, we could dimly discern the whitish column of the foaming fall, and occasionally the wind wafted its wetting spray against our faces, and the water we were in was a deep and rapid eddying current. After a delay of about a quarter of an hour, during which our driver answered all our enquiries with "*sacres,*" and saintly invocations, the guides returned, having rediscovered the road a little farther on, lying high and dry, which by a lateral movement we soon gained, and then found that, in the way we were going, we stood a chance of a shower-bath beneath the Pisse-Vache itself, if not of a worse fate.

Here we dismissed our hardy guides with thanks and suitable remuneration; and, with a grateful "*bon soir,*" they prepared at once to return to St. Maurice by the way we had come. The hardiness and endurance of the Swiss peasantry is truly admirable; and it is most worthy of being borne in mind, that in no instance will a peasant seek to be employed as a guide, on such occasions as this, unless his assistance is necessary, which, when offered, should, consequently, be always accepted.

At about three o'clock in the morning we arrived safely at Martigny, wet, cold, and uncomfortable, and got into bed.

Such was our first day's journey in the Alps. The amount of debris carried down by the torrents of one heavy day's rain in the Alps is inconceivable. I shall be enabled, in the progress of this little tour, to adduce some remarkable instances of these and similar phenomena, which Lyell has so ably illustrated, and founded thereon his geological system.

The morning appeared again, with all the beauty of the preceding one; and nought remained of the previous day's inundation visible, but some muddy pools in the meadows, and the swollen Drance, rolling turbidly along past the town.

Martigny, said to be the ancient "Octodurum," stands at the extremity of a level and fertile valley, surrounded by lofty mountains. The Drance coming from the passes of the Great St. Bernard, which we will hereafter describe, sweeps past on its way to join the Rhone farther down the valley. Immediately behind the town, boldly perched upon a projecting shoulder of the mountain, stands the ruins of the old castle of La Bathia, once a bishop's palace. The town itself is a scattered irregular collection of houses of the meaner sort: the new square, however, has some in better style, and shows a marked improvement in taste; some of the streets are tolerably well paved; and, in common with every Swiss village, or even châlet, it has got its fountains of crystalline water, which are usually supplied from elevated mountain springs, conducted through wooden pipes. In Martigny I first observed the custom, common throughout many parts of Switzerland, of hanging mistletoes over the house doors; a superstition for which I have not been able to get any reason rendered. Martigny, although sadly injured by the inundation of the Drance in 1818, a catastrophe which we shall more fully touch upon when treating of St. Bernard, is a rising little town, from its convenient situation for Alpine tourists, and the celebrity it has acquired from having been Napoleon's head-quarters, attracting travellers.

The valley of the Rhone, at the extremity of which it stands, is one of the deepest in Switzerland, surrounded, as it is, by mountains of great altitude, and its bottom but little more than 1000 ft. above the level of the sea. We may here remark an instance of the analogy that always subsists between the magnitude of rivers and the depth of the valleys in which they rise. One of the first objects that arrested my eye in Martigny was a *crétin*, or person afflicted with goître. It was the first I had ever seen; and, as it happened to be a very bad case, it made a powerful impression on me. Perhaps, of all the "ills that flesh is heir to," none is more humiliating in the spectacle it presents of mind and body. As this disease has been the subject of much controversy in the learned world, and as few people are to be met with that have a correct notion of it, a short account of it, I presume, will not be out of place. Indeed, it seems to me that although this is intended chiefly for the use of gardeners, yet to exclude every thing but gardening from it, would be like a gardener travelling with his eyes obstinately shut, except when he was informed that a garden was in view.

The disease called goître, and by physicians bronchocele, is seated in the glands of the throat, affecting, chiefly, the thyroid gland. Its appearance is that of a swelling, varying in size from a walnut to 20 or 25 lbs. weight. The protuberance generally remains of the usual colour of the skin; but in bad cases it becomes of a livid red, and sometimes suppurates. It is sometimes congenite, and frequently appears in after-life. It is not wholly confined to man; dogs and other quadrupeds have been observed labouring under it.

It is not confined to Switzerland, but is or has been found in some parts of Italy, in Sumatra, in Tartary, in the East Indies, at Dresden, and in Derbyshire. It has been said not to be indigenous at a greater elevation than about 4000 ft. above the level of the sea; but this is much disputed.

The swelling of the throat affects women and children much more than men. Except in extreme cases, it is never painful, and then it is always attended with idiotcy more or less complete. I have scarcely seen a woman in Switzerland that has not an unusual fulness of flesh about the throat, which, although not deformed, seemed to have a tendency to goître. Foreigners are not supposed liable to it.

When incision is made into the diseased gland, it is found cellular, and filled with a viscous fluid, occasionally containing portions of calcareous or siliceous concretion. Various causes have been assigned for this remarkable affection; the principal of which are the following: — 1st, That it is caused by drinking snow water. 2dly, By drinking water impregnated with, or holding in solution, siliceous or calcareous matter, which the water from glaciers generally is, although sometimes quite transparent. 3dly, That it is produced by the ardent heat and stagnation of the air of the valleys which is the opinion of Saussure. 4thly, That it is produced by an imperfect oxygenation of the blood, from the rarity of the atmosphere in highly elevated countries affording a less quantity of oxygen to the blood, in a given time, than a denser atmosphere would. To all these theories cogent objections have been made, and the question still is matter of dispute. It is asserted, however, that of late the exhibition of iodine, as a remedy for the disease, has been attended with almost universal success.

The chief objections to the first supposition is, that snow water differs in nothing from common water but in temperature. and that goîtres are found where snow is unknown. To the second, that in the majority of cases no secretion of solid or earthy matter is found in the gland. To the third, that the disease is found existing under various climates and states of the atmosphere. And to the fourth, that the rapidity of respiration is accelerated in a rare atmosphere, to compensate for the diminished supply of oxygen.

However, amidst all this speciousness, the most universal *coexistence*, and probable cause of goître, is the drinking water loaded with earthy matter, which is the case with almost all the water of Switzerland; and, from my own observation, I know that the peasants pay no attention to what water they drink. I have seen them drinking the water of the Aar, a glass of which, when laid by, soon deposits a large quantity of silex, and after some time an impalpable precipitate of tufa.

Idiotcy, as one of the frightful attendants on the disorder, has been attempted to be accounted for by supposing earthy secretions lodged in the brain as well as in the glands of the throat. Silex has been found in the pineal gland of idiots.

One remarkable fact respecting *crétins* remains to be noticed. They are esteemed by their parents *blessings;* they are even said to prefer idiotic children, conceiving them the peculiar gifts of God, and certain of future felicity, because incapable of wilful sin. These idiots are frequently married, and are always carefully tended in all their wants by their relations. It is at least fortunate for these poor objects that such a superstition prevails. They usually bask in the sun all the summer long, and are seldom employed at any occupation, however unintellectual. *

In next Number we propose passing through the Tête Noir into Chamouny, &c.

Robert Mallet.

Art. V. *On the Emigration of Gardeners to the United States of America.* By Benjamin Poore, Esq., of New York.

Sir,

In your Number for June last, your correspondent, now in this country (Vol. VIII. p. 288.), wonders you should advise gardeners and others to emigrate hither; and you very properly give my name in the margin (p. 289.) as the person from whom you received the information as to price of wages, board, &c.

Understanding your correspondent was in Albany, I have endeavoured to see him; not doubting, from what I had heard of him as a gentleman, he would be open to conviction, and correct, in his next letter, the mistake he had laboured under when he wrote to you last: but, he having left Albany, for the purpose of purchasing a farm, as I was informed, it was impossible for me to procure his address; and I must, therefore, beg of you to publish as much of this letter as you may deem proper, in answer to him. I am anxious for this, as, after the reception I met with from every class of society with which I came in contact during my sojourn in the land of my forefathers (it being universally marked with frank hospitality without the smallest claim to it, although at the risk which always attends the bestowing confidence *in advance* upon a stranger), I should feel very unwilling (partial as I am to America, though still proud of my English ancestors) to make any statement that would not be realised by every person emigrating here. I hope ever to remember, with gratitude and respect, the many acts of kindness which myself and family received while among you; and shall always endeavour to promote the wishes of all who visit this country, either for a short period or a permanent residence. Numerous enquiries were made of us, while in Europe, as to the class of people most benefited by emigration; and those enquiries often proceeded from persons who, like yourself, had no wish to emigrate themselves, but who are devoted to the welfare of the whole community, and desirous of imparting facts to such as have not the means of obtaining them by personal observation. To these enquiries my reply was always the same. To those who have a competent income to live in England, and no desire to increase the property intended for their heirs, *Remain where you are;* but to those wishing to increase their property, America opens a wide field in any branch of industry. Should they not wish to attend to any description of business, an opportunity is here presented of investing capital in stocks of various descriptions, or on bond and on mortgages of real estates; by which 6 per cent interest can always be obtained, and oftentimes 7 and 8, and sometimes 12 per cent per annum. To all who labour for a livelihood, and particularly if they have families, I say, Come without fail; and, should you meet with every obstacle imagination could picture, and you should, in fact, enjoy less of the comforts of life than in England, you would have the satisfaction of seeing your children educated, however poor you may be; and to know that the highest offices of honour or profit that a numerous and free people can bestow are within their reach; and, also, that they are in a country where the standard of morality is higher, although no religious sect has a preference by law, than in any other portion of the world. Most of your readers know the currency of the United States is dollars and cents; 100 cents making one dollar, and 444 cents the par value of the pound sterling. Of course, one shilling sterling is a fraction more than 22 cents. Multiply 22 cents by 7 (the number of days in a week), and it makes 154 cents; for which sum, I say (and, from my own personal knowledge, without fear of contradiction), board, lodging, and washing can be obtained in any farming section of the twenty-four United States. I have been in twenty-two of the twenty-four, and, always feeling an interest in agriculture, am certain I am not deceived. I never intended to convey the idea that board could be obtained in our cities and their immediate vicinity at that price;

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* Information on cases of goître, and opinions on the causes of it, will be found in the *Magazine of Natural History*, vol. ii. p. 403.; vol. iii. p. 191. 446. 470.; vol. iv. p. 86. 89. — *J. D.*

neither did I intend to quote the price of labour in such situations; as living is higher, and labour also higher. I have paid as high prices for accommodations in hotels in this country as I did at the London Coffee-house on Ludgate Hill: that is, however, no rule that a labouring man cannot live for much less here than in England. The labouring man receives as much wages in this country, in addition to board, washing, and lodging, as he obtains in England without either, as at least ninety-nine out of every hundred of the farmers in this country board their labourers; and I doubt much if they would give them 16 cents per day (say 8*d.*) in addition, if they would board themselves. The living or board generally consists of coffee or tea, bread, cheese, butter, and cold meat, morning and night; warm meat and vegetables, with a tart or pudding, for dinner; with good home-brewed beer or cider. I here subjoin a list of prices, which will enable at least housekeepers to see, and which will account for, the difference in living in the two countries.

I can safely say, I never knew a single instance of any person wishing employment in the agricultural or gardening way, that could not readily find it. We often have emigrants arriving among us like the Irishman, who, soon after landing, saw a half-dollar in the street, but passed it, and observed, he would not pick up any thing less than a dollar in America. Such had better not come. An industrious man is as certain to make himself and family comfortable in this country, as the sun is to rise and set. I think I could call on many, now holding respectable rank among us, who would say they had not the value of one pound when they arrived here. The spring is the best time to find employ at the highest rates: but the host of gardeners you have sent out, or rather those who have brought letters to me, have, I believe, without exception, found employ immediately. The Messrs. Prince are always ready to extend a helping hand to those coming out of season, by giving them employ in their extensive establishment, if at a low price, to begin with. If they prove competent, places are always to be had; and a character from them (being so well known here) is much more advantageous than any they can bring; although it is best always to encourage their bringing certificates, not only of a competent knowledge of their profession, but of good moral character. I employ English and Scotch farmers and gardeners entirely, and prefer them: not that they work faster, but that, always being accustomed to one kind of work, they execute it better, and generally work more days in the year. One word more as to board. I know an instance where six men were employed on a farm for one year, and every article consumed charged; and also fuel, rent of house, wages paid the maid for cooking and washing, &c.; which amounted, for twelve months, to 347 dollars and 42 cents, or about 112 cents per week each, or 16 cents (about 8*d.*) per day. I now annex the market prices of articles here, and also in the interior.

		£	*s.*	*d.*		*s.*	*d.*
Flour, per 200 lbs. -	City	1	0	0	Country	18	0
Wheat, per bushel -	-	0	4	6	- -	3	6
Rye - - -	-	0	3	0	- -	2	0
Oats - -	-	0	1	6	- -	1	0
Indian corn -	-	0	2	0	- -	1	0

Loaf sugar, 6*d.* to 8*d.*
Brown sugar, 4*d.* to 5*d.*
Coffee, 6*d.* to 8*d.*
Candles (tallow), 4*d.* to 6*d.*
Candles (sperm), 1*s.* to 1*s.* 3*d.*
Candles (wax), 2*s.* 6*d.* to 3*s.*
Green tea, 3*s.* 6*d.* to 4*s.* 6*d.*
Black tea, 2*s.* 6*d.* to 4*s.*
Rice, 2*d.*
Brandy, Cognac, 5*s.* to 6*s.* 6*d.*
Jamaica spirit, 5*s.*
Domestic spirit, 1*s.* 6*d.*
Madeira wine, 7*s.* to 24*s.*
Champagne, 2*l.* per dozen.
Common light wines, 8*s.* per dozen.
Spanish cigars, 4*l.* per thousand.
American cigars, 10*s.* to 2*l.* per thousand.
Tobacco, 3*d.* to 6*d.* per lb.

You will observe that I have put down but one list of the prices of groceries: in the country they afford them as low as in the city, as the expense of transportation is small, and their rents and other expenses less. I fear I have tired your patience, but trust your kindness will excuse me.

I am, Sir, yours, &c.

New York, Oct. 15. 1832. BENJAMIN POORE.

MR. PRINCE, writing to us on August the 6. 1832, thus adverts to the preceding subject: — "I notice (Vol. VIII. p. 288.) some remarks about the price of board here, and some difference of opinion. The price for real good *farmer's board* for labouring men is 1 dollar 75 cents; and for *village board* for labouring men from 1 dollar 75 cents to 1 dollar 87½ cents, seldom 2 dollars. I speak of this state, and of states east and south as far as the city of Washington: in the western states it is far less. In the *city* of New York, *labourers' board* is usually 2 dollars to 2 dollars 50 cents. The fact is, there is board at every price and kind; but what we speak of is good wholesome board." — *Cond.*

ART. VI. *Hints to Gardeners wishing to emigrate to the United States of North America.* By MR. G. THORBURN.

Sir,

BEING a well-wisher to gardeners, both from principle and interest (as it is by that craft I live), I think I may be of some service to those who intend coming to this country, by letting them know on what footing they must stand on their arrival. We have neither lords spiritual nor temporal in this country, with seventy thousand pounds sterling a year at their back; and who, to assist them in spending so much money, must employ perhaps thirty horsemen, a hundred labourers, and, it may be, thirty gardeners. Every tub here stands on its own bottom, and almost every man is his own gardener; and perhaps not in all America are there three gentlemen who employ two gardeners for the twelve months round. While our present system of government continues, as we have no hereditary estates, and property is consequently always shifting, we never shall have what are called overgrown fortunes. No man is able to employ ten gardeners in this country; therefore, while the present system continues in Britain, gardeners will meet better encouragement there than in America. Such a thing as head-*gardener*, a *grieve* [bailiff], or *overseer*, is not known in this country, except some of the latter in the southern states, among the blacks.* But, notwithstanding all this, a gardener may live very comfortably in America; single men (that is, such as are not married) are generally engaged by the year, and receive from twelve to fifteen dollars a month, bed, board, and washing. It is expected from them to raise vegetables sufficient to supply the family, to take the care of a few flower-beds, and sometimes a small green-house. If they are careful of their money, by attending church on Sunday, instead of travelling about in steam-boats, chairs, or frequenting ice-cream gardens, they in a few years will have enough to hire a few acres near the city, where they may commence market-gardening for themselves. I have known many who in a few years have established themselves very comfortably in this way; and as land is cheap, and neither poor's rates nor tithes to pay, if they mind their own business, they will get along very quietly. But I would not advise a gardener who has a family to come here, except he can bring with him 100 or 200 guineas; for it often happens that some months go over his head before he gets into a situation. In the mean time, it takes considerable sums to support his family. If he has no children, and his wife understands taking care of a dairy, they may both get employed, and live in the same house with the family; he managing the garden, and she the dairy: but if he has sons grown up, or of the age of 18 or 20 years, he might hire a piece of land near the city, and commence raising green-house plants for sale. I have known some do very well in this way, and among them is your worthy friend, Thomas Hogg. But, if a man come here from principle, he will not regret being put to a little inconvenience, when he reflects that he has delivered his children from the burdens and bondage of Europe, and placed them where their worth and industry will be suitably rewarded. Some of the wise men in Britain, of late years, have been devising plans whereby to stop the growth of the poor population; but in America there is room and sustenance for the whole population of Europe for very many centuries to come. A man wants only health (38 years I have been in New York, and have not been one day confined by sickness), hands, a good character, and a good spade, to work his way in this country.

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* Some of the young cockneys who have visited this country, with more money in their purses than wit in their heads, have returned and got some one to write for them a book, or, as they generally style it, *A Journal of their Journey overland in America.* These would-be authors, almost without an exception, describe in lively colours (and it is generally the only lively paragraph in the book) the inconsistency of the people and government of America keeping slaves in the south. This charge is true in the abstract; but these men forget, or perhaps they never knew (as they are not deep read), that these slaves were introduced into America under the reigns of George I., II., and III.: rather an inconsistent act of a government composed of lords spiritual as well as temporal, and kings by the grace of God, defenders of the faith, &c.! So, when the Americans were old enough to govern themselves, they found they were saddled with this last curse of the European dark ages. But there is no way to get quit of them, except they do as the Hessians and other white slaveholders do in Europe; that is, sell them from one master to another, to be shot at for so much per head. However, they are now sending them back to their own country as fast as practicable; and, in the mean time, they eat better, sleep better, are clothed better, and have less hard work, than the white slaves in Birmingham, Manchester, &c. Another generation, I confidently trust, will not find a slave from one end of the Union to the other — *G. T.*

Yours, with respect,

New York, Sept. 15. 1832. Grant Thorburn.

Art. VII. *On heating Hot-houses by hot Water; with some Account of a new Mode, the Invention of Mr. Weekes.* By Mr. Main.

Sir,

As the Gardener's Magazine is a receptacle for every thing relating to horticulture, I beg to present a few remarks on the various plans of heating houses by hot water.

Ever since the idea of using hot water as a medium of conveying heat was first entertained, various improvements have been suggested by professional engineers and others, all approaching towards perfection in the form and efficiency of the apparatus employed. The first designs were objected to on account of their expensive massiveness, slow action, and the small saving realised in the article of fuel. These attempts requiring nearly a dead level, and being therefore inapplicable to the irregular forms of many previously built hot-houses, soon called for improvements on the principle of conveying the heated fluid. The ascending tendency of heated fluids, and the impulsive effect thereon by cold, directed the artificer in the disposition of his conveying tubes; and by working in unison with these laws of nature, many most successful improvements have been made. Heating by steam, and admitting it into houses designed for the cultivation of tropical plants, is found to be a good plan; Kewley's siphon principle answers every moderate purpose of forcing; Cottam and Hallen's improved boiler and conveying tubes are also perfectly efficient for pineries, vineries, peach-houses, or for any other similar erections; and Weekes's flat tubes are particularly convenient in houses built for the propagation and growth of exotic plants: so that it would appear, as every purpose of the forcing-gardener can be obtained by one or other of these several plans, there remains scarcely room for farther amendment.

During the progress of these improvements, however, it soon became manifest that, when apparatus of large dimensions and great quantity of water were employed, though more slow in action, and more expensive in fuel, yet, when once thoroughly heated, the required degree of heat was evolved for a much longer time than it would have been by apparatus of a lighter and less capacious construction. This circumstance was particularly satisfactory to the anxious gardener, who, from this plan of heating, found that he could confidently take his *nightly rest* in peace. The reverse of this, also, became apparent; namely, that, the smaller the quantity of water used, and the smaller the size of the boiler and circulating pipes, the more rapid was the circulation, and consequently the more intense the heat which was evolved. This discovery also combined at the same time cheapness of first cost, economy in fuel, and economy of space; very little room being required for the range of pipes. On this latter principle Mr. Perkins has executed some excellently convenient apparatus, alike creditable to his genius, and satisfactory to his employers; and, it may be added that, with the addition of a properly constructed safety-valve, if this be practicable, his apparatus, for celerity of effect, and for local and temporary efficiency, stands unrivalled. This plan, however, is objected to by some gardeners, because it does not possess that accumulation, or store, of heat, which constituted the chief excellence of the old-fashioned pipes and boilers. Whether this objection be valid, or whether Mr. Perkins has made sufficient provision against all the accidents to which such apparatus is liable, does not as yet appear determined by public opinion. But if there be any such thing as a *just medium* between the fierce and fugitive effects of the light, and the more expensive and dilatory action of the heavy, apparatus; and if permanence of effect be an indispensable property of such contrivances, in the business of forcing; then we would say that the newly invented boiler and apparatus of Mr. Weekes, horticultural builder, of the King's Road, Chelsea, promise to be, as stated in the published opinion [Vol. VIII. p. 595.] of Mr. J. Knight, of the Exotic Nursery, Chelsea (for whom a small one has been erected), more effective than any other plan yet offered to public notice.

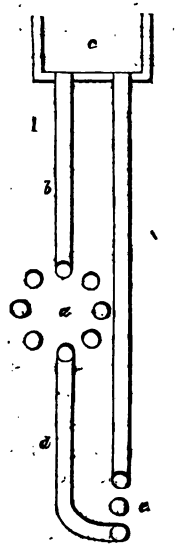
This invention, though very different in construction, is evidently a union of Mr. Perkins's principle of applying the fire, with a new arrangement of the conducting tubes. A complicated boiler produces almost instant effect, and the complication of the circulating pipes not only gives extent of radiating surface, but a sufficient body of heated fluid to be depended on, when the manager is asleep. The whole is an obvious improvement of Mr. Weekes's flat conductors; and the facility with which steam can be admitted into houses thus heated adds greatly to the utility of the plan. The narrow space occupied by Mr. Weekes's pipes is also a great recommendation, whether as applicable to hot-houses of confined dimensions, or to public or private buildings. For the vestibules or halls of large mansions the invention is, moreover, appropriate; as the pipes may be cast into the most elegant shapes, and, with gratings or curtains of brass or other polished metal, the most ornamental pieces of furniture may be designed. The conductors may be carried in any direction, and as well *below* the fireplace as above it.

Whether we have reached, or are only approaching, the acme of this use of fire and water, for the purposes and advancement of gardening, I know not; but, judging from what has already been accomplished, and contemplating the boundless prospect before us, we may still expect results of which, at present, we have no kind of conception.

J. M.

6, *Union Row, Chelsea, October*, 1832.

THE principle on which Mr. Weekes's apparatus acts will be readily understood by the following diagram (*fig.* 1.), in which *a* is a section of the fireplace, surrounded by cast-iron tubes, the uppermost of which communicates, by means of the upright tube *b*, with the open vessel *c*; and the lowermost is connected in a similar manner by means of the tube *d*, with one or any number of tubes under the level of the boiler at *e*. The uppermost of the tubes, at *e* is connected by the tube *f* with the open vessel *c*. Now, all these tubes being so connected as to admit of water circulating freely through them, when a fire is made in *a*, the heated water ascends by its rarification into the open vessel *c*; and its place in the tubes round the fire is supplied by the colder water from *e*, through *d*; the heated water descending to supply its place from the open vessel *e*, by the tube *f*. The object gained by this arrangement is, the circulation of water below the level of the boiler, the limits of the depth below being that of the height of the open vessel above. To produce this circulation, it is not necessary that the water should boil; for, as every heated particle will ascend to the open vessel *c* (which might be closed, and then the apparatus would be in principle the same as that of Mr. Perkins), its place must be supplied by a cold particle from *d*. When the fire is urged so as to raise the water in the open vessel nearly to the boiling point, the circulation goes on with the greatest rapidity.



It may be observed, that the substitution of tubes round the fire for a boiler over it, is by no means necessary for the success of this plan, though by tubes the rapidity of the circulation is greatly increased. Any close boiler with the tube *b* attached to its cover, and communicating with an open vessel fixed at any height, such as *c*, having another tube, similar to *f*, affixed to it, will circulate the heated water from such vessel to a point below the bottom of the boiler, nearly equal to the balance of atmospherical pressure, or, say 30 ft. below it. Messrs. Cottam and Hallen, and Mr. Timothy Bramah, have both circulated hot water on a large scale upon this principle, which is clearly laid down in Count Chabannes's pamphlet; and in our review of it, Vol. IV. p. 28. If the reader will turn to p. 30. of that review, he will there find an engraving, in which *a* is the close boiler, answering to Mr. Weekes's tubes; *b*, the ascending tube; *c*, the open vessel, answering to Mr. Weekes's open vessel; and *d*, the descending tube, answering to Mr. Weekes's tube *f*. We mention this, not to undervalue Mr. Weekes's apparatus, but merely to show that the principle has been known and acted upon since 1818. Mr. Weekes, who is one of the most ingenious men we know, has re-invented both the principle and the application of it; and most sincerely do we wish him the success he so amply deserves. His plan is capable of varied and useful application, both in heating garden structures and dwelling-houses, manufactories, &c. The tubes may be small, even as much so as those of Mr. Perkins; in which case, as the water circulates with very great rapidity, Mr. Weekes's plan, like that of Mr. Perkins, may be adopted in situations where large pipes would be unsightly.

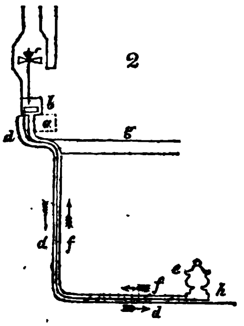
There is one objection, however, to all plans of boilers composed of tubes, which is, that, as they cannot be cleaned out, they soon become coated with deposit in the inside; and, consequently, extremely difficult to heat. An extra-application of fire then becoming requisite, the tubes or boilers are soon burnt out. For immediate and striking effects, there is no plan equal to the tube system; but, for permanency, none are equal to the open boiler, or close boiler with a manhole, having a cover that admits of easy removal, for cleaning out the interior. We have seen so many boilers and tubes burnt out since the hot-water system commenced, that we deem it our duty to state, thus freely, our opinion. It is true that cast-iron tubes, such as those of Mr Weekes, or the wrought-iron ones of Mr. Perkins, may be renewed at very little expense; and also that, if distilled water only were used, the deposit would be much longer in taking place. In particular situations, therefore, the tube system may unquestionably be the best. — *Cond.*

Art. VIII. *A short Notice of Mr. Busby's Method of circulating Water, hot or cold, by the Aid of Machinery.* By the Conductor.

This method is described at length in the *Repertory of Patent Inventions* for September, vol. iv. new series, p. 137. As it is not particularly adapted for hot-houses, we shall not go much into details; but simply state that the circulation is effected by an apparatus which may be compared to the wheel of a winnowing machine, and which is fixed on a perpendicular axis within the boiler (which must be circular), with its axis as nearly as possible over the end of a pipe which reaches from the circumference to the centre of the boiler. There is another pipe, which reaches no farther than the circumference. These two pipes may descend or be conducted to any distance, being united at their farther extremity so as to form only one pipe. The whole being then filled with water, the fan or circulator is made to revolve, by the action of the smoke and hot air of the chimney-flue, upon the fans of a common smoke-jack; and the result is, a rotatory motion communicated to the fluid in the boiler, the centrifugal force of which will so act against the fluid in the pipe terminating in the circumference, as to force the water down it, while it draws it out of the other. It is evident that, by this apparatus, either hot or cold water may be circulated with equal ease; the circulation depending entirely upon the centrifugal force, and the orifice of one pipe being in the centre, and the other in the circumference, of the boiler. The result is certainly such as would not easily have been anticipated. " To prove the efficacy of his invention, Mr. Busby has had an apparatus, on his principle, fixed on the premises of Mr. Eckstein, ironmonger, in Holborn; and, on the 9th of August, a numerous meeting of engineers and gentlemen of science took place, to witness its performance. The furnace is situated in a workshop on the second floor; and the heated water, *urged by the circulator*, passes throug inch pipes to a receptacle in the open shop on the ground-floor, having descended 21 ft. *below* the furnace. The experiment succeeded completely, and gave universal satisfaction.

"Mr. Busby considers his invention of general application; for, besides forcing the hot water downwards, an object never before accomplished, he causes so rapid a circulation in the ascending and level pipes, as to be enabled to employ tubes of much smaller bore than are now used. He can, besides, make water ascend and descend again about doors and windows, pass beneath floors; and, in short, he can carry his pipes in any direction whatever, without sensibly impeding the circulation of the hot fluid." — *C. A. B.* (*Rep. of Arts*, vol. xiv. p. 143.)

We were present on the occasion of the trial alluded to, and were much gratified. The following figure (*fig.* 2.), taken from the *Repertory of Arts*, will give a general idea of the apparatus, as exhibited at Mr. Eckstein's: —



a, A common fire-grate, fixed in a garret over the back shop. *b*, The boiler, with the circulator within it. *c*, Smoke-jack wheel, fixed on the same axis with the circulator. *d*, Descending hot-water pipe. *e*, Vase in Mr. Eckstein's shop, 21 ft. below the garret, which is kept full of circulating hot water by the descending hot-water pipe. *f f*, Ascending pipe, by which the water is returned to the boiler, to be reheated. *g*, The garret floor. *h*, The shop floor.

In heating dwelling-houses, and in cooling or heating liquors in manufactories, it is evident that this most ingenious invention may be turned to good account.

Art. IX. *A Mode of obtaining Uniformity of Temperature, and various Modes of Engrafting.* By Charles M. W——.

Sir,

I am not aware that the following method of obtaining uniformity of temperature has been tried. I placed a small pot with a cutting from a delicate fairy rose in a larger pot (*fig.* 3. *a*), containing charcoal, with a double glass over it (*b*), so as to leave a stratum of air between the glasses. Although it was tried late in the season, and placed in a green-house without any artificial heat, yet it succeeded. The object in view was, to surround the pot by a non-

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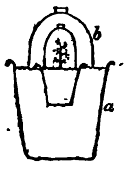
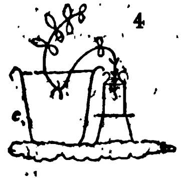


conductor of heat, such as charcoal. The stratum of air between the glasses produced a similar effect.

The plan of inarching with a cutting, mentioned in Vol. III. p. 29., suggested to me the idea of laying a cutting, and inserting the end in a bottle of water (*fig.* 4. *e*). I have lately tried a cutting of Lonícera flexuósa, and I feel very sanguine of success.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I have lately met with an old book written by the celebrated John Evelyn, which he calls *Kalendarium Hortense.* I was much surprised to find in it many remarks and advices which have from time to time been promulgated as novelties. It would appear that John Evelyn was the inventor of the method of warming green-houses with heated air. In the above book are drawings and descriptions fully explaining the way in which it may be effected. If I mistake not, patents were taken out some years ago for heating houses on that plan. In his remarks, under the month of July, he says: "Now with lime, brine, potashes (which is the very best of all, because, being cast on fine turf, it destroys the worms and improves the grass, which most other applications mortify) and water, or a decoction of tobacco refuse, water your gravel walks, &c., to destroy both worms and weeds, of which it will cure them for some years." Soot is also recommended. He also says, "In wall-fruit borders, which should be 4 or 5 ft. wide, plant neither herb or flower." He mentions "that sick trees, as oranges, &c., are many times recovered by a milk diet; that is, diluting it with a portion of water discreetly administered, as you find amendment." I do not remember seeing this last recommendation in any late writer. It may, therefore, pass for a novelty. As to removing trees, of which so much is written in our time, he says, "That you may transplant not only any fruit trees, but remove almost any of the foresters, even in the midst of summer, if, taking the trees with some mould about the roots, you immediately plunge them into earth made into a pap like mortar, keeping it fresh and under shade, and not suffering the ground quite to dry up and harden till rain comes down." This very much resembles some of the modern plans. As to straw mats lately so strongly recommended, he says, in the month of November, "Cover also your most delicate stone fruit and murals, screening them with straw hurdles, as long as the east and northern winds continue, even to the end of March, to be sure of the fruit. Stand, therefore, not so much upon the beauty, as for its preservation and production."

I think the following advice which he gives, though not entirely new, is good. For plants not placed in the conservatory, and not hardy, he recommends, "that the pots should be placed two or three inches lower than the surface of a bed with southern exposure, having clothed them first with sweet and dry moss; but upon all warm and benign emissions of the sun, and sweet showers, give them air," &c.

I will not draw farther on the stores of the worthy John Evelyn; as, before I conclude, I wish to call the attention of your readers to a new plan of grafting, called by Monsieur Vergnaud Romagny*, *écusson greffe*, or shield-grafting. It may be universally practised on all the ligneous tribe, whether trees or shrubs, either on the old or on the new wood; but the latter is to preferred. The stock should be vigorous, and the sap by preference ascending: it need not, however, be very abundant; nevertheless this disposition is more advantageous than hurtful. The stock, whether young or old, should be clean cut horizontally, from half an inch to one inch (according to the species) above a bud which is somewhat developed, and the extremity of which should be pinched off; or a small shoot on which one or two eyes may be left. The bark is to be divided by a vertical cut, from one to nearly two inches in length, according to the size and strength of the stock, the distance from the bud or shoot near the horizontal cut, and also according to the species, as from *a* to *c*, *fig.* 5. Either the right or the left side of the bark, guided by the neighbourhood and position of the bud or shoot near the vertical cut, is to be raised with the handle of the budding-knife, taking great care not to touch or injure the opposite side. In *fig.* 5., the left side (*a*) is raised opposite the bud (*d*), and the right side (*b*) remains untouched. The graft should be taken from a healthy and vigorous subject. It is a shoot of young wood cut to a certain length, according to the position of the eyes (gemmæ) of the species. If both the graft and the stock are in perfect health and full of sap, three or even four eyes may be left. *Fig.* 6. has three at *i.* The shoot is to be cut across, a little above the first superior eye; and, below, it must be cut sloping (*en sifflet*), as from *h* to *k*. At the notch *h*, half the thickness of the wood is to be cut away. The side *g* will be oblique, and the side *f* quite straight. *Fig.* 7.

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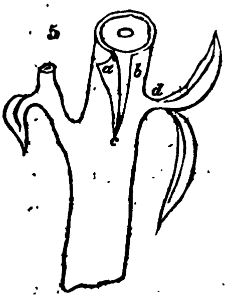

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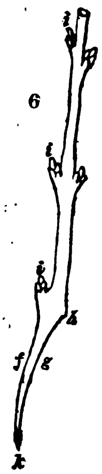
* From the *Recueil Industriel*, par M. de Moleon.



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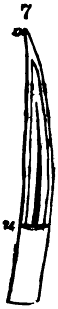

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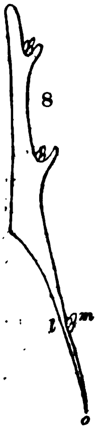
is a front view. It will be observed that at the notch *n* half the wood is scooped away, and that the graft has only a thin portion of wood two thirds of its length, and that at *o* only the peel or bark remains, also that the sides *f* and *g* (*fig.* 6.) have only bark or peel on their edges. The graft thus prepared will slide into the opening prepared in the bark of the stock (*fig.* 5.), so that the edge of the bark of the graft joins the edge of the bark (*b c*) in the stock. The notch (*n*) resting on the horizontal cut of the stock, and the bark of the stock (*a c*, *fig.* 5.) almost covering the graft. Held in this position by the thumb and finger of the left hand, it should be tied tight with bass, covering the whole of the opening. Afterwards apply grafting-wax, * to prevent the contact of the air with the recent wounds of the stock and graft. The graft may now be left to itself. The only care which it requires is, that the stock should be freed, from time to time, of any buds which might absorb part of the sap; and support given, if the graft grow very rapidly. *Figs.* 8. and 9. show an advantageous modification of shield-grafting, which M. Vergnaud Romagny believes has not been practised. It always succeeded, and is preferable to the other mode, when operating on the young wood, or with the more delicate species. This modification consists in preserving an eye on the lower part of the graft, as at *l m*, *fig.* 8., and



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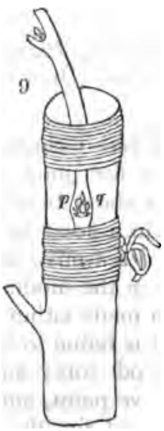

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* The following receipt for grafting-wax will be found good, the heat of the body or the mouth rendering it sufficiently soft for use: — Take common sealing-wax, any colour, except green, one part; mutton fat, one part; white wax, one part; honey, one eighth of a part. The wax and the fat to be first melted; then add gradually the sealing-wax in small pieces; keep it constantly stirred; and, lastly, the honey, just before taking it off the fire. It should be poured hot into paper or tin moulds, and kept slightly agitated, till it begins to congeal.

to let it appear through an opening left in the folds of the bass, as at *p q*, *fig.* 9. It will be seen that the graft, by this method, only bears two superior buds; and that the third, left on the lower part, forms the shield, and should be freed from wood, according to the species and to custom. The operations are the same; but the latter plan offers more chances for the success of the bud, without interfering with the graft. The results of a great number of trials of the new methods are given by M. Vergnaud Romagny. I will not take up more of your valuable space than to state that he considers the result to be more than a gain of one half the time usually required by the ordinary mode of grafting; and that these sort of grafts resist the effect of cold. Various kinds of delicate roses resisted an intense cold, while some by the old method, even of two or three years, perished.

Would steam injure fruit trees, if applied by the machine used for destroying bugs; and would it not destroy the A'phis lanígera? I am, Sir, yours, &c.

London, *Dec* 11. 1832. CHARLES M. W——.

ART. X. *On a new System of labelling Plants in living Collections.*

By ROBERT MALLET, Jun. Esq.

Sir,

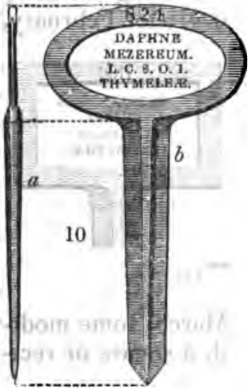
A NEARER approach than has hitherto been made to perfection, in all the requisites for good labelling, I suppose myself to have made, and am about briefly to describe. The first object to be aimed at, in a good label, is immutability by the effects of climate and seasons; the next, quantity of information, and perspicuity in the mode of conveying it.

Labels have hitherto been made either of lead, iron, wood, or pottery. Lead bends, and is liable to be stolen; iron rusts, and destroys the paint; wood rots; and pottery moulders, unless so hard as not to receive paint, and is always clumsy.

Common paint has been used for the nomenclature of all but the latter, which have, I believe, been stamped.

The labels I propose are composed partly of iron, partly of copper and enamel. Start not, reader, nor exclaim "Expense!" for I purpose to show that the original and entire cost of this will not be greater than the sum expended in two or three years renewing the present defective ones. To proceed: my label consists of a cast-iron ring, elongated at one side into a prong, to stick into the earth; cast into the centre of which is a disk of copper, not more than one twentieth of an inch in thickness, which is covered on both sides with a coat of hard white enamel, on which latter the letters are also enamelled.

The situation of the copper plate, in the cast-iron rim, is seen by the section, *fig.* 10. *a.* The mode of casting the former in the latter is perfectly simple. When taken out of the moulding sand, the copper will be found having a slight curvature, which is to be removed by a few blows of a hammer.



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The contraction of the rim in cooling is the cause of this, and has the advantage of completely preventing their being stolen, to sell as old copper; for the latter is held so tight that nothing but breaking the iron rim into small fragments can possibly detach it, and, together, they are unsaleable.

The hard white enamel is next to be applied, on both sides of the copper, and fused; an operation familiar to every clock-dial maker; after which the letters are to be painted in enamel colours, and burnt in. The final operation is then to cover the iron rim and prong with a varnish, to prevent rust. An easily attainable and perfectly efficacious one is to be found in a mixture of ground black lead with the residuum which is drawn out of the retorts used in the manufacture of oil gas. It is a black, solid, shining asphaltum, fusible at about 300° Fahr., and resisting, when applied with the black lead in sufficient quantity to give it a body, all vicissitudes of seasons.

To apply it, the labels are to be heated slowly in an oven, or hot sand, to about 200° Fahr., and the varnish, being previously melted in a fit vessel, is to be applied with a hard brush.

So much for the material of the label: now for what it bears. It is obvious that the more information can be conveyed by a label, consistent with due simplicity, the better. All that is generally useful, however, and that is not evident by the locality of the plant in the general arrangement of the garden, may, I think, be comprised as follows; viz., — 1. The place in the Linnæan system; 2. The place in the Jussieuean system; 3. The genus and species; 4. The habitat, and year of introduction, if an exotic; or the habitat, and year of discovery, if a native; 5. The month of flowering; 6. The colour of the flower; 7. The number in the catalogue of the garden. On the principal face of the label are enamelled the places of the plant in the Linnæan and Jussieuean systems, with the genus and species; on the other, the year of introduction or discovery, and the habitat.

The time of flowering is shown by the labels, being multilateral figures whose sides correspond in number to that of the month in the year, reckoning from January inclusive; the label for which is a circle or ellipse, as being the only regular figures bounded by one line (*fig.* 10. *b*); for February, of *two* segments of circles (*fig.* 11. *c*); for March, some modifications of a triangle (*fig.* 11. *d*); for April, a square or rectangle (*fig.* 11. *e*); for May, a pentagon (*fig.* 12. *f*); and so on (*figs.* 12, 13. *g* to *n*). The colour of the flower is shown by the letters being all enamelled on the white ground of that colour, or, if white, on a coloured ground.

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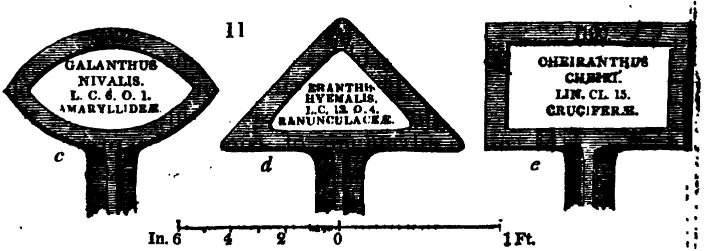
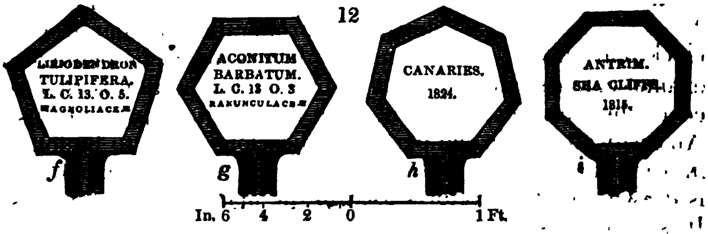

GALANTHUS NIVALIS. L. C. 6. O. 1. AMARYLLIDEÆ.
ERANTHIS HYEMALIS. L.C. 13. O. 4. RANUNCULACEÆ.
CHEIRANTHUS CHEIRI. LIN. CL. 15. CRUCIFERÆ.
c
d
e
In. 6 4 2 0 1 Ft.

12


LIRIODENDRON TULIPIFERA. L. C. 13. O. 5. MAGNOLIACEÆ.
ACONITUM BARBATUM. L. C. 13 O. 3 RANUNCULACEÆ
CANARIES. 1824.
ANTRIM. SEA CLIFFS. 1815.
f
g
h
i
In. 6 4 2 0 1 Ft.

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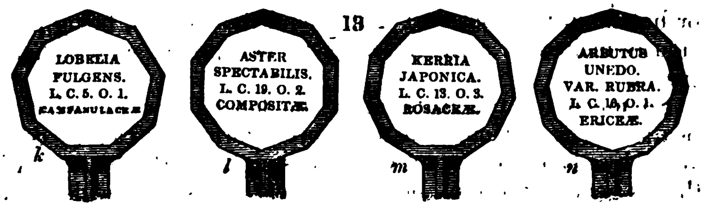
LOBELIA FULGENS. L. C. 5. O. 1. CAMPANULACEÆ.
ASTER SPECTABILIS. L. C. 19. O. 2. COMPOSITÆ.
KERRIA JAPONICA. L. C. 13. O. 3. ROSACEÆ.
ARBUTUS UNEDO. VAR. RUBRA. L. C. 10. O. 1. ERICEÆ.
k
l
m
n
In. 6 4 2 0 1 Ft.

The number in the catalogue is cast in raised figures on the edge of the iron rim. It is obvious, that much other information might be easily conveyed, (e.g., whether the plant was deciduous or evergreen, by the rim being serrated or plain, and that the kind of information might be changed according to the application of the label. The principal facts in favour of this mode of labelling are, 1st, absolute immutability from climate and seasons; 2d, no inducement to steal for sale, except as a label; 3d, beauty of appearance; 4th, quantity of information simply given.

The argument of expense against it is set aside thus: — A common cast-iron label costs about *3d.*; the painting costs *2d.* more, and it requires to be painted twice a year, to keep the iron from rusting and the letters legible; so that at the end of two years the label has cost 11*d.*, and will cost 4*d.* more every year it exists: but an enamelled label can be made, where a number are required, for about 9*d.*, and never costs a halfpenny afterwards.

Any argument on the score of difficulty of manufacture I am prepared to rebut. It may be said that the label, being lettered on both sides, would be inconvenient to read: this is obviated by placing it perpendicularly in the ground, with the plane of the label transverse to the line of plants, and between them and the walk or alley; by which arrangement a person walking along can see each face equally well.

This method is obviously applicable to inside plants, in which case the iron rim might be dispensed with.

ROBERT MALLET.

Ryder Row, Dublin, Sept. 23. 1830.

ART. XI. *Design for a Gardener's House, to be situated on the North Side of a walled Kitchen-Garden.*

THE whole of the living-rooms of this house are on one floor, about 4 ft. above the level of the garden; and, below this floor, there are, a cellar for beer and roots (*fig.* 15. *a*); a wash-house (*b*), with an oven and boiler, the former for baking, and at the same time heating the floor of the kitchen, passage, and office on the floor over it; and the foundations (*c c*). The living-floor contains a parlour (*d*); a master and mistress's bed-room (*e*); children's bed-room (*f*); office (*g*); and kitchen, with pantry and closet (*h*). The exterior offices are obvious, and need not be particularised.

The architecture of this dwelling (*fig.* 14.) is in the plainest possible style; the object being, to produce a cheap, and, at the same time, commodious and comfortable house, for a master-gardener, with a wife and two children.

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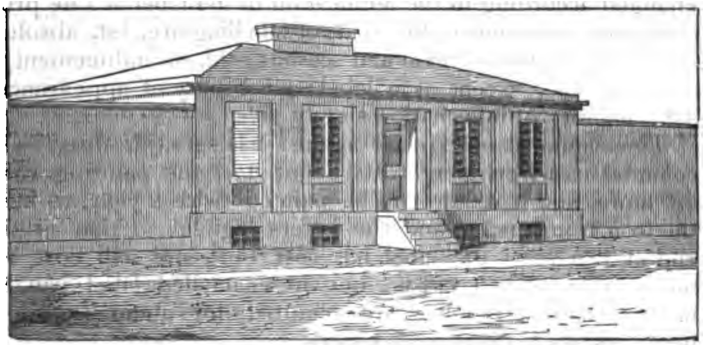

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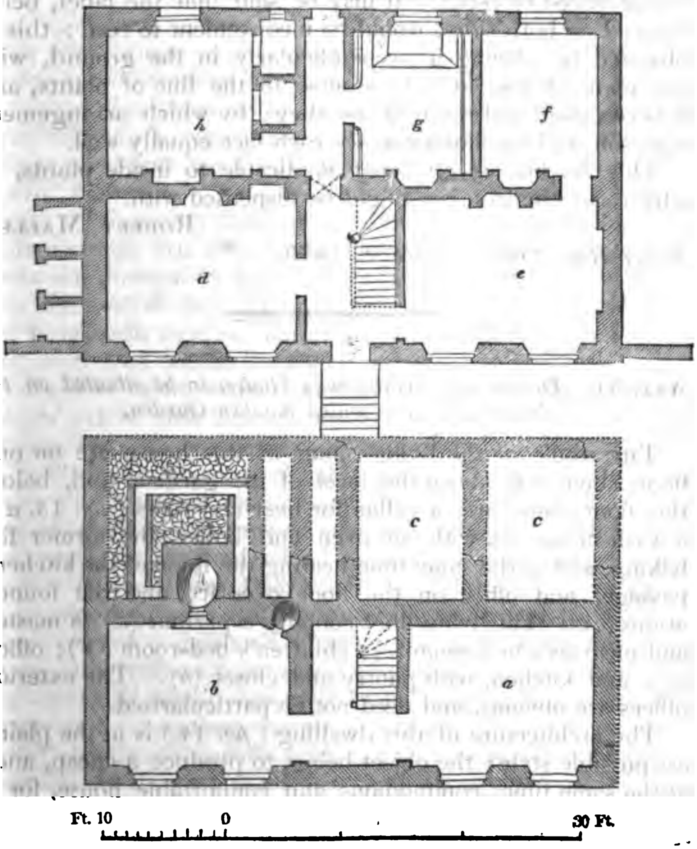

ART. XII. *Physiological and Practical Remarks on the pruning of Forest Trees, particularly of the Scotch Pine.* By Mr. W. TAYLOR.

Sir,

FROM what you have published (Vol. VIII. p. 303.) as the forerunner of Mr. Main's book on forest trees, there is reason to anticipate that it will be a valuable work, as he is a man of science and practical experience. Such a book is much wanted; and it is to be wished that it may treat of soils and subsoils scientifically, as well as of trees. I have just read an article in Chambers' *Edinburgh Journal* on trees, wherein we are told that no science was known or applied in arboriculture until 1828, when Sir H. Steuart published his *Planter's Guide*. It also advises landowners to form an arboricultural society; and adds, "Were phytological science to become a favourite study with them, then, of course, gardeners and nurserymen would acquire it. . . . . Before many years pass over us, we are confident that a revolution must take place in our arboricultural skill and science, as complete as in political. The future, compared with the present race of our planters, will then be like that of mariners who have long been at sea without a compass; or like men working in the dark, when the light of the sun was let in upon their labours!" Mark this, ye, my brethren of the old school, who still maintain that practice is every thing; and who will not go beyond, nor alter from, the system you were taught. Yes; all in the dark, not one redeeming man among us. Much has been discovered by men of learning and science, which could not have been accomplished by practical men, from their want of education; but, more so, from want of means and time to try experiments. Well: but do men of science see clearly through all nature's laws? It seems not. At any rate, they differ in opinion, for instance, on the cause of the ascent of the sap; and whether or not fruit trees can be perpetuated by graftings. But the great light is soon to be let in upon us, when our great men, in imitation of Peter the Great, learn the arts, trades, &c.; turn their old swords "into pruning-hooks, and learn the art of war no more." Establish a horticultural society in all its branches (pity it was not done fifty years ago), at which all must pass before they can obtain situations as kitchen-gardeners, foresters, or flower-gardeners. Therefore it is time for those who do not think themselves already fully qualified, to begin to get their catechisms; for, if we are not able to pass the "Hall," we shall be turned to making roads in forests, and transplanting large trees. This will be no joke.

In this awkward squad, besides men of the blue apron, there will be not a few farm overseers, carpenters, cartwrights, &c., who all were foresters before they were examined and found wanting.

I have no doubt that your able correspondent, Mr. Howden, will pass; but his new bill will not pass, unless it be amended. He does not put a proper value on leaves and their functions. He knows that the taste of grapes, gooseberries, and other fruits, is not very palatable when the trees have been stripped of their leaves either by man or beast; and has he not seen forest trees, whose leaves had been blasted in the beginning of summer by storms, stunted in their growth; also beech, and other nonreproductive leaf trees, stunted for years by severe pruning? His stripping a tree of its leaves in summer puts me in mind of a paper forwarded to the London Horticultural Society, by Sir John Sinclair, from "Sir Brook Boothby, then at Brussels; to say, that he keeps his peach trees free from the red spider by plucking off every leaf the moment he sees any on it." On the other side, it must be admitted that a tree can have too large a head; and all large rambling branches are robbers as well as feeders of the tree. Such branches should be foreshortened, and are not to be seen on a well-pruned tree. A newly transplanted tree, shrub, or even a cutting, may have too many leaves; by which too much of its sap, in a dry season, is carried off by evaporation before new spongioles can be formed to afford a sufficient supply.

We of the heath and fir covered mountains are still of opinion that thick planting and timely thinning is the better treatment of the pine tribe. I state, without fear of its being called exaggeration, that, on an average, one man has upwards of a million of those trees to care for, of all ages. If he get assistance to thin, it is all he can expect, and all that is necessary [*]: and the best Scotch pines ever grown in Scotland were neither pruned nor thinned.

In the *Quarterly Journal of Agriculture*, a year or two ago, there is an essay on pruning deciduous trees, by a Mr. Gavin Cree, nurseryman at Biggar. I know nothing of the man, but his system appears to me to be of the very best; and, were it generally followed, there would be less over-pruning, no-pruning, and rot-tree-pruning. I do not think you published Mr. Cree's essay; perhaps you will. Not having been able to see the four Numbers of this Magazine preceding the last two, I am ignorant of what made John Howden give his new bill. Hoping he will come to the *scratch* again (for we cannot do without him), I remain, Sir, yours, &c.

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[*] Scotch firs, planted on a suitable soil, at 3½ ft. distant, or 4500 per Scotch acre, and properly managed in thinning, will be in general clean-stemmed 20 or 30 ft. up before they are 50 ft. high, and of a size for common rafters. Were a few extra men, with 30 ft. ladders, set to prune 200 acres of them higher, it would not pay, unless they were of more value than at present. — *W. T.*

Thainston, Nov. 10. 1832. W. TAYLOR.

ART. XIII. *Observations on some of the principal Causes why the most important Parts of the Science of Arboriculture, pruning and thinning, or rather the System to supersede the Necessity of much pruning, are not more generally known, or at least practised; with Hints for the Removal of these Causes.* By Mr. W. BILLINGTON.

Sir,

FROM reading the numerous conflicting opinions on the science of arboriculture, published in the Gardener's Magazine and some other works, which have come under my observation within the last few years, I am induced to offer a few remarks, which you are at liberty to publish in your Magazine, if you judge them worthy a place in such a useful publication. What has induced me to resume my pen is the extraordinary, yet still *too common*, opinion Mr. Howden has advanced relative to the subject, in Vol. VIII. p. 560., which he terms the *true system*; and of which he says, that he will *stand or fall* by it. But I can assure Mr. Howden, that it is not with any desire to bring him to the "*scratch*" again, as he terms it, that I notice what he has advanced on the subject, but to prevent others from imbibing or retaining such erroneous opinions. For possibly I may not see what he can further say about it; or, if I do, I shall probably not notice it. He may, from his ready talent at humour, get the laugh against me; but, I trust, I have philosophy enough not to mind such a method of "shutting people's mouths;" as my desire is to be useful to others as far as I am able, without hurting any one, and to seek for the true knowledge of the subject, in order to divulge and spread it as clearly and extensively as I am able.

Seeing that there are such clashing opinions (let them be called systems, methods, or what you please), I am put in mind of a circumstance which I have proved in myself, and which may tend to elucidate my remarks a little. Some years ago, I purchased a famous *British Herbal*, that professed to cure all manner of diseases incident to mankind, by the virtues of herbs, upon an entire new plan, by a Mr. J. Ingle.

Well, after the specification of a disease, there are the general and particular remedies, internal remedies, and external applications, preventives, preservatives, abaters, provokers, with *numerous* and different herbs, and methods to effect the object; and, as Shakspeare says,

> ——" like a man to double business bound,
> I stand in pause which I shall first begin,
> And both neglect."

Consequently, among so many, not knowing which to prefer, I neglect all, or adopt any remedy that another recommends. So, I am afraid, the case is too often with respect to pruning and thinning of plantations, when the owner has not a competent knowledge of it himself; and this is very rarely the case.

Mr. Howden says, " Some people are of opinion that the branches, twigs, and leaves assist the growth of timber; and a certain author, Mr. Withers, compares the leaves of trees to its mouths," and " advises such authors to shut their mouths till they can open them to better purpose." Mr. Howden says he should rather have called the leaves " nostrils, or mere excrements," because the trees discharge them annually. It would thus appear that trees have a wonderful power of retaining their excrements for six or eight months. I happen to be one of those persons who think that the branches, twigs, and leaves do assist the growth of timber; also, that the leaves of trees take in nourishment for the support and increase of the wood, or timber, if you like; which persons Mr. Howden affects to hold up to ridicule, and desires to shut their mouths, but not their eyes or ears, I presume, to hear or see what he says upon the subject.

Some of our physiologists say that leaves have a power of *absorbing and imbibing* nutriment from the gases in the atmosphere; which a common person, like myself, who pretends to none of that great learning, would term, to take in or to draw in nourishment, when discoursing with persons of his own size or make; but not to mean, to eat, chew, or swallow it. If Mr. Howden had read carefully what Mr. Lindley (the professor of botany) has advanced on these two subjects in his late lectures, extracts of which have appeared in the three last Numbers of your Magazine [Vol. VIII. p. 380., 507., 615.], letting alone other authors, he would not have been so ready, perhaps, to have ridiculed, and desired him, with others, to shut his mouth, if he could open it to no better purpose; nor, had he read Mr. Main's remarks on the use of branches and twigs in forming timber, whose ideas and rules for pruning, and the functions of branches, are in substance the same that I published some years since.

I cannot see the analogy of Mr. Howden's comparison of the leaves of a tree and the wool of a sheep: "that we might divest the tree of its leaves in summer without injuring it, if we could keep the sun from blistering it." This is wonderful, if it were true; as it is evident a tree could make little, if any, progress, till it had produced fresh leaves.

Mr. Howden further asserts that "the branches are *only* the offspring of the tree;" and quotes St. Paul to prove it. That "they draw up sap only to enrich themselves," and that they are "complete bloodsuckers;" consequently, that they add nothing to the stock whence they sprang: a very ungrateful progeny, to be sure, if they return nothing!

Before I quote any author who seems to be of my opinion, to corroborate what I shall have to say, I would just premise that there appear to be but three ways, as I humbly conceive, by which the trunk and branches of a tree are increased in bulk. First, by the descending radicles, roots, filaments, tissue, or fibres, as they are variously termed, from the leaves and leaf-buds annually, as Dr. Darwin supposed. Secondly, from ascending fibres from the root or collar upwards. Or, thirdly, in a horizontal direction, from the sap only, in its ascension and descension, or rather flowing state, adding to the trunk, like paint or plaster to a wall, or, as Mr. Howden says, like as candles are increased in thickness by frequent dipping. In that case, one would suppose every part of the stem, branch, and twig would thicken equally alike, which, we find, is not the case. Then, if timber is not increased by something that grows longitudinally, it must, according to Mr. Howden and others, be by the condensation of the sap, in the fashion of candlemaking. Query, Were this the case, would not timber, when dry, break to pieces like candles? and if it would, Mr. Howden, perhaps, can inform us of what use it would be.

Now, we see, as the young shoots of a tree increase in length, they increase in thickness, from the extremities downwards or backwards; so also with the branches and the trunks. But if the increase in thickness of the timber and branches were from the root upwards, one would suppose, by analogy, that the case would be reversed, and that every part of a tree would be thicker upwards. What sort of trees they would be, I cannot conceive, or how they would be supported in the earth: there must be cleverer men, I presume, than either Mr. Thom or Sir Henry Steuart, to transplant and support them afterwards.

There is a nectarine tree in my garden, which I have been examining, to refresh my recollection. The part above where it was budded is more than one third thicker than the part below. Now, the stock must have been of a considerable thickness before the bud was inserted; therefore, if the tree were increased in thickness from the root upwards, or, as I have suggested, horizontally from the bark to the alburnum or stem by the *sap only*, each part contiguous must have thickened alike, and the stock must still have been the thickest part, particularly if all the sap ascends from the roots every spring. As, however, this is not the case in the instance noticed, and in many similar ones, it would appear that wood is increased from the top downwards; as it is well known that some stocks, when the engrafted scion and stock are nearly alike in their habits, increase regularly in size with the engrafted part, to the very point of union with the roots, the same as trees raised from seeds or cuttings: hence it appears clear, that the branches, twigs, and leaves do increase or assist the growth of the timber.

I can understand perfectly what Mr. Howden says of "having seen a weeping ash getting on to the size of a pyramid, on a common ash stock with a bole not fit for a ladder." This is an instance of the disproportion which I have been endeavouring to elucidate. Mr. Howden's remarks on another ash tree which he has seen, that was planted at the same time with that named, "with a top that barely makes room for three rooks' nests, yet with a trunk fit for sawing into 11-inch planks, I cannot comprehend. As Mr. Howden does not inform us whether it ever had any more branches, or when it was divested of them, nor what length of time it would take to make 22-inch planks, with no more branches than would contain three rooks' nests, it would be well if Mr. Howden would explain that to those whom he advises to "shut their mouths."

In Mr. Lindley's late lectures on the relation of botany to horticulture, I observe that he appears to have the same opinion that I have on these subjects, which I take the liberty to quote: —

In Lecture 1. (Vol. VIII. p. 382.) he says: — "Leaf-buds (so called to distinguish them from flower-buds) in trees, are, in fact, trees in embryo, and afford the only certain means of multiplying varieties. . . . . . . Leaves may be called the lungs of plants; as, through them, the sap is exposed to the influence of the atmospheric air. They are furnished with pores (vulgarly, perhaps, called mouths), which can imbibe nourishment as well as throw off superfluous moisture."

Lecture 5. (Vol. VIII. p. 619.): — "The sap, having reached the leaves, is there exposed to the action of the atmospheric air, much in the same way as the blood in lungs; with this *important* difference, that, while animal blood principally absorbs oxygen, and gives out carbonic acid gas, &c. . . . . sap appears to have the greatest affinity for carbonic acid, and to be compelled to give out a portion of its oxygen, before it is fit to afford proper nourishment to the plant. As the sap, during the process of its elaboration in the leaves, has not only to imbibe certain qualities, but to throw off others, plants, like animals, are provided with the necessary organs for a double kind of respiration [which Mr. Howden would rather have called excrements. Have excrements organs?]. These functions, however, are never perfectly performed without the assistance of light. When a plant is exposed to the full action of the sun's rays, it gives out pure oxygen, and absorbs carbonic acid; which is afterwards decomposed in the plant, the carbon being only retained. Carbon has been proved to be essential to the existence of plants; and it appears that their vigour depends upon the quantity of carbonic acid they are enabled to absorb."

Lecture 6. (p. 621.): — "He had before stated that leaves absorb carbonic acid during the day, and oxygen during the night, forming carbonic acid in proportion to the oxygen they have absorbed; that they decompose their carbonic acid during the day, setting free the greatest part of the oxygen it contains, and retaining the carbon, which appears to afford them food; and that this process is necessary to their vegetation, though the exact manner in which it acts is at present unknown to botanists."

Thus far Mr. Lindley, on the use of the leaves to imbibe nourishment or food for the support of trees; consequently, to *assist* in the growth of timber. Before I proceed to the other question, Whether the branches and leaves are the principal means of the increase of timber, or are perfectly useless to this end, I would just beg leave to ask Mr. Howden, and others that are of his opinion (as I have asked before in my publications), whether trees that grow in horizontal fissures of sandstone and other rocks, with immense thicknesses or layers of rock over and below their roots, and, of course, no soil, and where no rain or dew can get at their roots, and, in some countries, where it seldom if ever rains; I ask, whether such rocks do contain all the necessary ingredients or matter that constitute the food of trees; and that the roots actually imbibe, extract, or introsuscept (as Sir Henry Steuart would say), all the sap or blood necessary for the growth of the tree, out of the very stones or sand (which Sir Humphry Davy has proved to be perfectly barren), for the support of not only the stem, but that offspring of "complete bloodsuckers," as Mr. Howden terms the branches and leaves.

If any able chemist can satisfactorily prove by analysis that the very rocks, sand, or sandstone, where such trees are found to grow, some in great luxuriance, contain all the carbon and other ingredients that constitute the food of trees, and form the sap, wood, and leaves, we might then be convinced that leaves were of no use to imbibe any part of the necessary food from the gases in the atmosphere: but how they will reconcile the difference between such barren rocks and sands, and the best of soils, I must confess I am at a loss even to conjecture.

Now, to the use of the branches and leaves in the increase and growth of the wood or timber. In Lecture 3. (Vol. VIII. p. 512.), on the formation of timber, Mr. Lindley says: — "The timber is increased by concentric layers, formed one every year between the inner bark and alburnum, or surface of the young wood, the manner in which this layer is deposited is the point where botanists do not agree." Of the various opinions that have been broached on this subject, Mr. Lindley said, he should only state two, which he considered the principal.

"First, That the increase in diameter of timber trees is effected by the annual transformation of the inner bark into alburnum, hardening into wood, and a new inner bark being formed by the *exuding* juices of the tree." Perhaps Mr. Howden's opinion, probably the candlemaking way. Secondly, "That fibres are constantly sent down by the leaves, which, embedding themselves in the cellular tissue formed by the descending sap, make a new layer between the inner bark and the alburnum. Various experiments have been tried by the supporters of the first of these opinions; one of which seemed almost conclusive. A portion of the outer bark having been removed, and a thin plate of silver having been bound on the outside of the inner bark, this plate of silver was buried in the tree."

On the other hand, the advocates for the second hypothesis, viz., that the layer of new wood is formed by depositions from the leaves, assert that, if a tree be ringed to such a depth as to cut off the communication between the alburnum and the leaves, the stem below that ring will not increase in size; but that the part above the division will exhibit an extraordinary swell, as though the nourishment intended for the whole trunk were concentrated to that point. In further support of the second hypothesis, it had been observed that trees planted on the edge of a wood, in such a situation as only to have one side exposed to the full benefit of the sun and air, and which, of course, have partially developed their leaves and branches, are found invariably to have their concentric layers of wood broader on the vigorous than on the stunted side. Mr. Lindley further stated that many objections had been raised to the second of them, because its first supporters had asserted that each individual leaf, or rather bud, sent down fibres through the whole body of the tree, directly to the ground. This, he observed, seemed to be carrying the doctrine rather too far. Now, from what I have observed and stated before, the second hypothesis appears, at least to me, to be the true one. But let us see what further Mr. Lindley has said on this subject, before I state what more I have to say.

In your Number of this Magazine for October, 1831 (Vol. VII. p. 584.), in Mr. Lindley's introduction to his book entitled *A Guide to the Orchard and Kitchen-Garden*, I find the following statements on this subject: —" A plant is really an animated body, composed of an infinite multitude of systems of life; all, indeed, united in a whole, but each having an independent existence. These systems of life are buds, each having a power of emitting descending fibres in the form of roots; and also of ascending, in the form of stem. The first of these buds is the embryo (in the seed); the others are subsequently formed on the stem emitted by the embryo (in the progress of germination). As these secondary buds develope, their descending roots combine, and form the wood. Their ascending stems give rise again to new buds.

" *Budding and Grafting.* Budding differs from grafting in this, that a portion of a stem is not made to strike root on another stem; but, on the contrary, a bud, deprived of all trace of the woody part of a stem, is introduced beneath the bark of the stock, and there induced to strike root." Here, then, we have Mr. Lindley's opinions of the use of branches, leaves, and leaf-buds, in combining and forming the wood.

Let us now see Mr. Main's opinion respecting branches and leaves assisting in the growth of timber. In his *Essay on Vegetable Physiology*, now under preparation for the press, extracts from which appeared in this Magazine for June last (Vol. VIII. p. 304. and 306.), on pruning forest trees. " If," says he, " we except the failure of the lowest branches of trees, there are few indications in nature showing the necessity of pruning. In natural forests, trees grow generally close together: of course, their branches, being deprived of air and light, quickly perish; but when, by accident, they stand singly, the lower branches are as permanent as those of the top, nay, even more so; and, moreover, they appear to be as necessary a part of the system. . . . A great deal has been written," he observes, "relative to the propriety of reducing the head of a tree, as a means of increasing the bulk of the trunk. The question lies in a nutshell. The larger the head, the larger must be the trunk: also the diameter of the latter is increased by the number of branches which are, or have been, produced by the former. In proportion as the roots are increased and extended, in like manner are the stem and head. Severe mutilations of the head paralyse the energies of the roots; and, *vice versâ*, reducing the number of branches, to give magnitude to the stem, is ridiculous. Every individual twig of the head is a part of the stem; and the former could not be developed without the assistance of the latter, which, while it conveys support, is itself enlarged by this very function. In fact, every part of a tree depends on, and, in its turn, lends assistance to, every other." Here, then, we have Mr. Main's opinion. He says further, "that probably Dr. Darwin got his ideas of the stems of trees being increased by descending fibres from the leaf-buds, from the spectacle of a hollow willow tree being partly filled with roots, which, from time to time, had descended from the head;" but, he adds, "that was no corroboration of the doctor's conclusion."

After such evidence as this, I may presume to state my own observations. Let any one strip a leaf, when in a growing state; and he will find, as Mr. Lindley observes (in Lecture 4, p. 615., when speaking of leaves), "that their intimate connection with the bark might easily be discovered, by tearing the petiole of a growing leaf from its point of union with the branch; when it would be found that a portion of the bark, and even of the alburnum, would be stripped off with it." But I advise to go farther, and to strip it off when it has done growing; and it will be found to break off quite smooth at the point of union with the branch, without tearing any of the bark or alburnum with it, and leave every part that connected it to the shoot behind, for the increase of the bark or wood; which, I think, clearly proves that the descending fibres of the leaf and leaf-buds are incorporated with the bark and alburnum. But those who still doubt should examine farther, and begin with the last formed leaf and bud at the end of the shoot; and they will find that the bud springs directly from the pith, then with a knife separate the leaf and bud together, when they will find how the new shoot is formed, and increased from the descending fibres of each successive leaf and leaf-bud; then, descending still lower, strip off the last year's lateral (side) shoot from the preceding year's wood (which operation may be done with the fingers and thumb), and they will then see it farther illustrated; and, pursuing the examination still farther, strip off a two years' lateral shoot from the main one, when it will be seen (more convincingly, if possible) how the descending fibres from above have increased and enclosed it to the main stem; also, how the descending fibres turn over, and to each side of, the protuberance at the base of the lateral shoot, at its emission from the pith or centre, and descend downwards. These examinations, I think, must convince the most incredulous, of leaves and branches being the means of supplying the material, and the cause of the increase of the diameter, of the stem: hence the absolute necessity of numerous branches, twigs, and leaves, in a healthy state, to produce much good timber in the shortest time; whatever Mr. Howden and others may assert to the contrary.

Thus we see how the bulk is increased regularly from the extreme point of each year's young shoot, from leaf to leaf on the young shoot, from lateral shoot to lateral shoot, and from branch to branch progressively down, to the collar or junction of the stem with the root. This is beautifully exemplified in some of the conical trees, such as the larch and poplar; and I am inclined to think that the roots of trees are increased in a similar manner; that the office of the trunk and branches is, only with differently formed organs, to imbibe necessary nourishment. Mr. Lindley, however, seems to be of a different opinion; as he says, Lecture 3. (Vol. VIII. p. 510.), "Those portions of the roots nearest the trunk are, in fact, only elongated portions of the stem, stretching into the ground for the purpose of giving stability to the tree." On this point I must beg to differ from such high authority; for, let any one take the same method to examine the roots that has been recommended for the stem and branches. It will be found, I believe, to increase by ascending fibres towards the collar, common centre, or the point where the ascending stem and descending root spring from in the seed. I have stated this merely for more skilful persons to investigate, as it is rather foreign to the present subject. It would hence appear to be clearly demonstrated that leaves and branches are indispensable for the increase of timber, at least according to such recent authorities as Mr. Lindley and Mr. Main, whom you so highly applaud. Still, from what Mr. Howden and some others have published on the subject, some may and do think that the leaves and branches are of little or no importance, as the means of increasing the trunk of trees; witness the numerous instances which we see of the whole of the branches being cut off to nearly the top of the tree, or else the trees suffered to grow so close that they can make but few side branches.

I am, Sir, yours, &c.
Rue Wood, near Shrewsbury, W. BILLINGTON.
Oct. 20. 1832.

WE have left out the remainder of this long communication (at least, for the present), as not being essential to the object which the author appears to have in view. — *Cond.*

ART. XIV. *On forming Live Fences with Larch Trees.* By Mr. GORRIE, F.H.S. &c.

Sir,

IN the spring of 1831 I had occasion to enclose a four-acre park, of high, dry, and rather poor land. Economy and immediate protection being objects of consideration, I had a 4-ft. ditch cast, at the rate of 6*d.* per fall of six ells (we still generally keep by the 37-inch ell in Scotland); and having some plantations of larches, of nine years' standing, on an adjacent eminence, which required thinning, it occurred to me that it might be possible to construct of them a live fence, that would have immediate effect; and, with this view, I employed two men to take them up carefully, as marked out for thinning, about the beginning of March. I employed two other men in planting them among the earth thrown out of the ditch; myself holding the tree, and giving it the intended position. It occurred to me that wind-waving was one principal preventive of the growth of larches transplanted at that age, which would be avoided by laying the trees in a slanting direction; besides, fewer trees would form an efficient fence, than if standing perpendicular. The trees were from 10 to 12 ft. long, and were laid at about an angle of 30° with the horizon, the tops inclining a little *over the ditch* to the interior of the park, whence the danger, from cattle attempting to break through, was to be apprehended; the surface of the ditch bank being about from 20 in. to 2 ft. above the ordinary level of the ground, and the upper part of the roots about 3 in. below that surface when the earth was dressed off. The plants were well feathered to the bottom, with side-branches, which were all allowed to remain on the trees; and at the surface the roots were from 30 to 36 in. distant, but the stems or centres of the tree, from the sloping direction given them, were only from 15 to 18 in. distant, "centre from centre," which, with the branches, presented an obstruction more apparently formidable than really so; and which had the effect of preventing any of the enclosed horses or cattle from making an attempt at taking a leap. The expense of planting did not exceed another 6*d.* per fall; and thus an effective live fence was put up, at less than would have erected a three-railed paling, the decay of which would commence the day on which it was erected, while the living larches, that otherwise would have been almost useless, acquire yearly strength, which will soon present an insurmountable barrier to the passage of live stock, besides affording immediate shelter, which will be annually increasing. This year I find (as was to be expected) the leading shoot begins to assume a perpendicular direction; and every fourth or fifth tree I intend to allow to grow to full maturity, when the proprietor of future times may find it convenient to have them cut up for naval timber.

I did not expect that every plant transplanted at that age should grow; and the dry weather which followed, in the summer of 1831, was by no means favourable to their success: about 80 plants died of 760. These I this spring interlined with young plants of about 3 ft. in length, transplanted larches from the nursery, inserted under the backgone plant, the dead branches of which give the young plant, with a little assistance, the proper direction. In order to make assurance doubly sure, I planted a row of young transplanted larches from the nursery at about a foot apart, and a foot separate from the old plants, to which they had a contrary direction given them. Here I would have taken blame to myself, if I had to record the death of a single plant. The whole are now in a thriving condition; and I can, with some degree of confidence, recommend the process to those who may have upland fences to form, and thinnings of larches of nine or ten years' standing to spare. I am, Sir, yours, &c.

Annat Gardens, Oct. 1. 1832. ARCH. GORRIE.

ART. XV. *On laying out Flower-Gardens.* By MASARONI.

Sir,

I HAVE read the remarks on laying out flower-gardens by Mr. Robert Errington, in this Magazine (Vol. VIII. p. 562.), and hope they may meet the eyes of some of that numerous band of amateur gardeners, who make Flora blush at their awkward arrangement and disposal of her gifts. How often do we see parks laid out in good taste, so far as water, trees, and drives are concerned, with a flower-garden, composed either of " gaudy masses" and " lumpish forms," or of stars, and hieroglyphics of all sorts, for which no name can be found. It may be said by some, that the flowers have nothing to do with the landscape scenery of a park, and are to contribute to its embellishment by their individual beauty only. I differ from this opinion *in toto;* but, without formally attempting to controvert it, shall beg leave to submit a few ideas of my own on the subject. It appears to me, that the most general fault, in laying out flower-gardens, is the total absence of connection or unison between the several beds or borders. It is admitted by most persons, that, in park scenery, all details should be subservient to the effect of the whole; and I consider that the same rule is applicable to the arrangement of a flower-garden. Where the shape of any individual bed can be changed at pleasure, without injuring or altering the general effect; where stars can be transformed into garters, full moons into crescents, oblong meat-dishes into round cheese-plates, and *vice versâ;* I cannot consider the flower-garden as approaching to perfection, notwithstanding any sum which extravagance may have been pleased to throw away upon it. I concur in several of Mr. Errington's remarks, but cannot say that I at all like his plan or design, of which your Magazine contains a woodcut (fig. 106. p. 564. Vol. VIII.). I do not see any bed or beds in it that might not be replaced by others of a different form; I cannot discover any other principle than that of placing large groups outside, and little groups in the middle. I venture to subjoin a sketch (*fig.* 16.) illustrative of my own opinions on the subject.

Allow me here to enter my protest against the little iron basketwork with which many flower-beds are surrounded, to the very great detriment of the toes of gouty or contemplative amateurs. Where the little monstrosities are visible, they give a rigid and harsh outline, which has any appearance but that of nature; and, when they are covered or overhung with flowers, such as heliotropes, geraniums, or the bright scarlet beauty of *V*erbèna *c*hamædrifòlia, in which case, being out of sight, they look best, as the Irishman said; why, even then, Sir, suppose a lady or gentleman wishes to reach a rose or honeysuckle growing in the centre of a group; cautiously stepping here and there among the front ranks, his or her foot catches in the basketwork, and a fall is the consequence, by which

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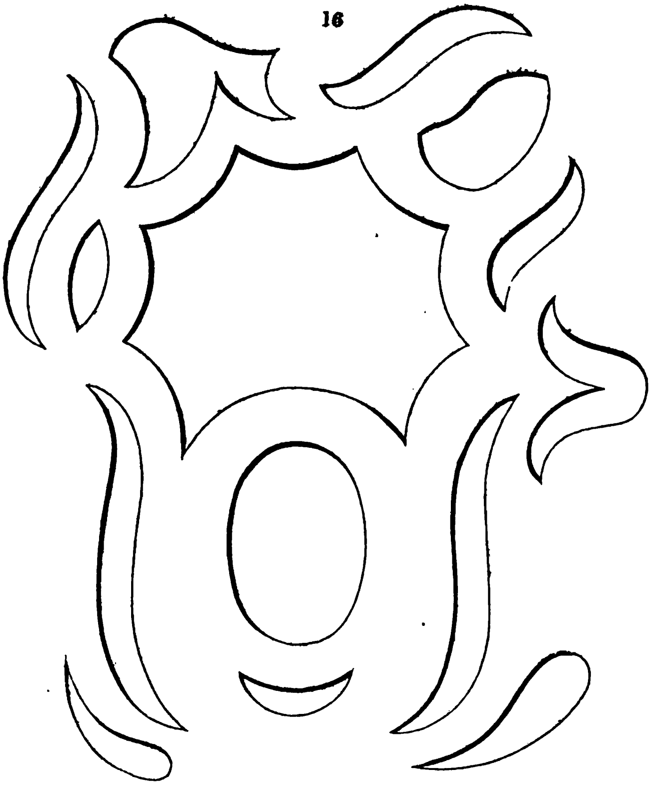

the flowers are broken and destroyed, not to mention the danger which " eyes, nose, mouth, and chin " may encounter from the fixed-bayonet defence of sharp-pointed iron flower-stakes, number sticks, and various other sticks with which the border may be furnished. I am, Sir, yours, &c.

London, Dec. 6. 1832. MASARONI.

ART. XVI. *The Culture and a List of Herbaceous Plants which will thrive in the Air and Smoke of Cities.* By Mr. WILLIAM BOYCE.

Sir,

No person having given the information desired by " A would-be suburban Gardener " (Vol. VII. p. 721.), I now attempt to do so; and although I regret that the subject has not fallen into more able hands, still, I shall hope the motive, and not the value, of the offering, may propitiate its acceptance. The two principal causes of the want of success attending the cultivation of plants in town gardens are, the want of a proper soil and a congenial air: the former is generally composed of too much lime and brick rubbish, which is any thing but good for showy herbaceous plants. I would first ascertain if such were the nature of the soil. Should it prove to be of these materials, take it out of the clumps and borders to the depth of a foot, and fill them up with fresh loam, mixed with a little rotten cow manure: in this soil will grow all the plants named in the accompanying list.

I shall endeavour now to assist the suburban gardener in rendering the air which surrounds his plant department more healthful to them. Dr. Hunter observes, that air contains the life of vegetables, as well as animals: "it is a compressible elastic fluid." The smoke of populous towns and cities, where coal is the fuel, greatly lessens its elasticity and its fluidity, and consequently renders it uncongenial to plants. The practice observed by town gardeners in general is, to give an abundance of water to the roots of plants: this should be discontinued, or, at least, given much more sparingly and less frequently: it is by over-watering, in such gardens, that plants are, as it were, surcharged with crude juices, which the leaves, while they are covered with dust, cannot pass off. I would, therefore, instead of watering so much to their roots, give frequent syringing over leaves and stems, and keep them as free from dirt as possible. They will then be able to perform their proper functions, perspire during the day, and during the night fill themselves with fresh juices. Cleanliness is as necessary to plants as to animals. The syringing should be performed at the approach of evening in the summer months, and just before sunrise in early spring and autumn. Keep the mould in the clumps and border loose, by frequent stirring with a Dutch hoe; water with a fine rose any vacant compartment. By this, and the syringing, the air will be rendered more humid. The China rose may be induced to grow more than 2 ft. high, by giving it, in addition to the soil I have mentioned, a good supply of rich manure, and keeping its leaves clean. The fuchsias, particularly Fúchs*ia* grácilis, should be kept to one principal stem; the side shoots to be shortened to an inch of the stem: they then flower more freely. A suburban gardener will do well to examine whether his georginas [dahlias] are not infested with earwigs: if they are, hang a few lobster's claws on the sticks they are tied to; in these they may be caught: if he has a bloom he particularly values, tie loosely tow, dipped in sweet oil, just below the flower-bud.

In the list below, I have confined myself to hardy herbaceous plants, such as are showy, and will, with the treatment I have described, not only grow, but thrive, even in town gardens. I had intended to have made a few observations, respecting the care of plants kept on balconies, and in apartments, in London, but shall reserve these for a future communication. Should the above remarks be considered worthy a place in your Magazine, which has done much service to gardens, gardeners, and their employers, and be of use to "A would-be suburban Gardener;" the little trouble I have had will be amply rewarded. I am, Sir, yours, &c.

The Lady Gifford's, Wm. Boyce.
Roehampton, Surrey, Sept. 23. 1832.

- *A*chillè*a* *r*òsea.
- *A*conìtum ochroleùcum.
  - variegàtum.
  - versícolor.
- *A*ctæ`a spicàta.
- Adòni*s* vernàlis.
- *A*'llium *M*òly.
- *A*nchùsa itálica.
- *A*ntirrhìnum màjus bícolor.
- Aquilègia sibírica.
  - glandulòsa.
  - atropurpùrea.
  - hýbrida.
- *A*sclèpia*s* púlchra.
  - purpuráscens.
- *A*sphódelus ramòsus.
- *A*'ster alpìnus.
  - *A*méllus.
  - Nòvæ A'ngliæ rùber.
  - sibíricus.
  - mutábilis.
  - spectábilis.
  - serótinus.
  - pulchérrimus.
- Baptísia exaltàta.
  - austràlis.
  - tinctòria.
- *B*etónica grandiflòra.
- Campánula carpáthica.
  - *p*ersicæfòlia cærùlea álba.
  - latifòlia cærùlea álba.
  - Trachèlium bícolor.
  - speciòsa.
  - azùrea.
  - alliariæfòlia.
  - sarmática.
- *C*atanánche cærùlea.
  - álba.
- Chelòne glàbra.
  - oblìqua.
- Chelòne Lýoni.
- Coreópsis verticillàta.
  - senifòlia.
  - lanceolàta.
- Coronílla ibérica.
  - montàna.
- *C*orydàlis nóbilis.
- *D*elphínium grandiflòrum.
  - mesoleùcum.
  - Barlòw*ii*.
- Diánthus latifòlius.
  - japónicus.
  - supérbus.
- *D*ictámnus Fraxinélla.
  - álbus.
- Digitàlis micrántha.
  - lanàta.
- *D*odecàtheon Mèad*ia*.
  - albiflòra.
  - gigantèa.
  - élegans.
- Dracocéphalum speciòsum.
  - variegàtum.
  - altaiénse.
- Eránthis hyemàlis.
- *E*rígeron philadélphicus.
  - glabéllus.
- Erythrònium Déns-cànis.
  - Déns-cànis álbum.
  - americànum.
- Fritillària imperiàlis, in variety.
- Galánthus nivàlis.
- Gaillárd*ia* aristàta.
- *G*enti*àna* *a*sclepià*dea*.
  - cruciàta.
  - acaúlis.
- *G*èum coccíneum màjus.
- *G*ladìolus byzantìnus.
  - commùnis.
- *G*laúcium fúlvum.

- *H*edýsarum obscùrum.
- *H*elèn*ium* autumnàle.
- Heliánthus decapétalus.
- *H*ellèborus nìger.
- *H*emerocállis gramínea.
  - dísticha.
  - fúlva.
- Hepática tríloba, all the varieties.
- Hippocrèpis comòsa.
- *H*yacínthus orientàlis, all the vars.
- *I'*nula glandulòsa.
- Lavát*era* thuringìaca.
- *L*eucòjum vérnum.
  - æstìvum.
- *Liàtris* spicàta.
  - scariòsa.
  - squarròsa.
  - élegans.
- *L*ílium cándidum.
  - *Pompònium.*
  - chalcedónicum.
  - tigrìnum.
  - *Mártagon.*
- *L*ithospérmum davùricum.
  - paniculàtum.
- *L*upìnus nootkaténsis.
  - polyphýllus.
    - álbus.
- *L*ýthrum diffùsum.
- Monárd*a* Kalm*iàna.*
  - Russell*iàna.*
  - punctàta.
- Muscàri comòsum.
  - monstròsum.
  - botryöìdes.
    - azùreum.
    - pállidum.
    - álbum.
- *Œ*nothèra speciòsa.
  - macrocárpa.
  - fruticòsa.
  - Fràseri.
  - serótina.
  - pùmila.
- *O*rnithógalum umbellàtum.
  - pyramidàle.
- *O'*robus *l*athyröìdes.
  - variegàtus.
  - vérnus.
  - vàrius.
  - nìger.
- *P*æòn*ia* officinàlis rùbra.
    - carnéscens.
- *P*apàver orientàle.
  - bracteàtum.
- Pentstèmon *r*òseus.
  - campanulàtus.
  - atropurpùreus.
- Pentstèmon pulchéllus.
- *P*hlòmis púngens.
- *P*hlóx. All the species except pilòsa, amœ`na, subulàta, canadénsis, nivàlis, and setàcea.
- *P*hyteùma orbiculàre.
  - campanulàtum.
- *P*olemònium grácile.
  - pulchéllum.
- Potentílla pedàta.
  - formòsa.
  - Russell*iàna.*
  - Hopwood*iàna.*
- *Prunélla* grandiflòra.
- *P*yrèthrum *r*òseum.
- *R*anúnculus *a*conitifòlius.
- Rudbéck*ia* hírta.
  - fúlgida.
  - serótina.
  - purpùrea.
- *S*álvia Tenòre*i*.
- Saponària *o*cymöìdes.
- *S*cílla nùtans.
  - sibírica.
  - bifòlia cærùlea.
    - álba.
    - cárnea.
  - amœ`na.
  - *h*yacinth*öìdes.*
- *S*enècio *Dorónicum.*
- *S*isyrínchium convolùtum.
  - califórnicum.
  - striàtum.
- *S*piræ`a Filipéndula.
- *S*tátice latifòlia.
- Sternbérg*ia* lùtea.
- Taxanthèma *b*ellidifòlia.
  - flexuòsa.
- *T*eùcr*ium* hyrcánicum.
- *T*halíctrum aquilegiæfòlium.
  - *a*nemonöìdes.
- Tradescánt*ia* virgínica.
  - nívea.
  - congésta.
  - *r*òsea.
- *Tróllius* europæ`us.
  - asiáticus.
  - pátulus.
  - americànus.
- *V*erbáscum formòsum.
  - pyramidàtum.
  - cùpreum.
  - phœníceum.
- *Verónica* neglécta.
  - incìsa.
  - corymbòsa.
  - incarnàta.
  - multífida.

Art. XVII. *On raising Seedling Ranunculuses.*
By the Rev. Joseph Tyso.

Sir,

Several of your correspondents have noticed my communications on raising seedling ranunculuses (Vol. VI. p. 548., Vol. VII. p. 565.); and others, by private letter, have informed me that they have adopted my plans with success. As I am anxious to promote the growth of seedling flowers in general, and of ranunculuses in particular, I shall readily communicate to you any additional knowledge I may acquire from observation and experience. During the last season, I sowed about forty boxes of seed. My first sowing was on the 8th of August, 1831; my second on the 15th: both these failed, which I attribute to the dryness of the atmosphere. My third sowing was performed on the 22d, which did well, and produced a quantity of fine large roots. The fourth sowing, on Sept. 24., did well; the fifth, on Sept. 30., did equally well; the sixth, on Oct. 10., did well. At the seventh sowing, on Oct. 13., I sowed three boxes: all came up well, but two failed soon after the seeds came up. On close inspection, I found that all my boxes were infested with a great number of very small brown insects, scarcely visible to the naked eye, except when in motion. They resemble lobsters in shape, and had the power of hopping about by the sudden pressure of their tails against the ground. I should guess there might be sixty or eighty in every square foot. I applied tobacco smoke, and found they were easily destroyed; but, in a month or six weeks, I found them increasing upon the boxes again. I applied the same remedy, with the same success, until they disappeared. They may be discovered by breathing or blowing on the surface of the box. I examined several of them in a microscope, and I found the power of motion lay in their forked tails. I have not been able to ascertain their name; but, to my great regret, I found that they had made great havoc among the young plants; and, I believe, they were the cause of an entire failure in many of my boxes. The eighth sowing, Oct. 21., did well: I took up 228 roots in one box, which was 16 in. by 14 in., and 4 in. deep. The ninth sowing, Oct. 27., did middling; the tenth, Nov. 7., good; the eleventh, Nov. 10., very good; the twelfth, Jan. 7. 1832, a complete failure; the thirteenth, Jan. 17., a complete failure, the weather being too cold to produce germination; the fourteenth sowing, Jan. 24., did well; the fifteenth sowing, Feb. 20., did badly.

I do not attribute the success or non-success entirely to the time of sowing; but, from many years' observation, I am prepared to say that the middle of October and the latter end of January are the best times for sowing; and, at the latter time, they will succeed without any protection by glass: but they should be defended from heavy rains when very young, and from scorching suns at all times, until they begin to fade, which will be in June. They should be taken up in July, and planted the ensuing February, in the same manner as old roots. I have about 100 fine new varieties, which I have raised from seed; several of which I have sold for *5l.* per root, and others at different prices, according to their worth. I have raised about 2000 this year from seeds saved from the best old flowers, impregnated with semidoubles possessing good properties. I have long ceased to sow seed from semidoubles, because they rarely produce one good flower in five hundred. Let all who attempt to raise seedling ranunculuses utterly destroy the insects described above, and slugs which harbour about the boxes.

The king has graciously condescended to become the patron of our Horticultural Society; which has given an increased stimulus to its members, who are manifesting a becoming zeal to excel in the exhibition of the finest specimens of flowers and fruits which skill and industry can produce. I am, Sir, yours, &c.

Wallingford, Nov. 1832. JOSEPH TYSO.

MR. TYSO has published a sheet catalogue of ranunculuses, tulips, pelargoniums, &c., for 1832, which may be had, gratis, on application to him, post-paid. — *Cond.*

ART. XVIII. *On the Culture of the Orange Tree in England.*

By R. S.

Sir,

HAVING often observed with astonishment the inconsistent manner in which the orange tree is cultivated in this country, and the bad success which generally attends such a mode of treatment, I take the present opportunity, through the medium of your Magazine, of describing the method of management by which I have found them to succeed best. After having procured a quantity of good seed from the common citron, sow it about the middle of February, or beginning of March at the latest, in 24-sized seed pots filled with rich light mould; covering it half an inch thick with the same sort of soil, and spread a little moss over the top, to keep the mould moist. Plunge your pots in a hot-bed, previously prepared for them, of about 70 to 75 degrees of heat, taking good care not to let the heat sink below that temperature. In a few days the plants will make their appearance through the moss, after which a little air must be given them when the weather permits. As soon as they attain the height of five or six inches, which, if properly managed, will be in five or six weeks after they are sown, pot them into 60 or small 48 sized pots, taking good care to drain the pots well, which is a very necessary thing towards the growing of any plant well, and especially orange trees; after which plunge the pots in the hot-bed as before, taking good care that the bottom heat is not too violent for their roots, and keep a steady heat, so as not to let them get any way stunted in their growth, and by the month of July the greater part of them will be ready for being engrafted. Prepare a gentle hot-bed in a shady situation; or, if that cannot conveniently be done, turn the back of the frame towards the south: then graft the plants, which may be performed in various ways with equal success; but the manner I would recommend, as in my opinion best, is that of cleft-grafting, as the scion heals over the wound much sooner than by any other way. I generally take off the top of the scion before inserting it in the stock, which, in my opinion, acts as a stimulus to make the sap flow afresh, and make them unite much sooner than if left untopped. At this time much care is required to keep up a proper heat; and that the plants be well shaded with double mats, for the clear sun will often cause a complete failure. When you find that they have properly taken, admit a little air; but it must be but very sparingly at first. If convenient, I would recommend the plants to be kept in a frame during winter, as they are sure to keep much better there than any where else, if good care be taken not to overwater them, otherwise the roots will rot. If about the beginning of April a little dung heat be given, to set them growing, they will benefit much by it, provided plenty of air be admitted, to prevent them growing weak. If one shoot be likely to take too much the lead of the others, pinch off the top, which will cause the sap to go to the others, and by that means form a fine head to the plant.

By such treatment, I am of opinion that orange trees might be grown to much more advantage than by the present manner of raising stocks, which are generally two years old before they are fit for use. I have seen orange trees cultivated in this manner with great success. The orange tree does not require to be shut up in a house, like stove plants, as most people treat it in this country; but ought to get plenty of air at all seasons, and in summer should be put out early in the season, and not treated as they are at Hampton Court, and several other of His Majesty's gardens, where they have some of the finest in the country, or at least which were the finest when they arrived there; but at present they assume another appearance. The treatment these trees receive must convince every reasonable person that it is impossible they can be otherwise, when it is known that they are kept in a house all summer, with only a few windows in front of it, and then, in August, after they have made young wood, like windlestraws, by being kept in such a place, they are turned out of doors for two or three weeks, for the winds to blow off their leaves, and blast the young shoots. On the contrary, they should be turned out early, as in France, which is, in most seasons, from the 1st of May till October.

Perhaps it may be argued that our climate is not so good. That I will allow; but if our early part of summer is not so hot, our month of August is sometimes more so. I would never wish for a better place than that at Hampton Court for wintering orange trees, when in many parts of France they are kept in cellars and caves, and in very few places have they a better place than an old coach-house or barn. I know an English candle manufacturer at Rouen, who has 80 of the finest orange trees I ever saw, and has no place to keep them in except an old barn, in which they are obliged to set the large plants on pillars five or six feet from the ground, in order that the smaller ones may be placed under their branches, where they stand without injury until the following spring, without scarcely losing a leaf. M. Vallet, who is well known about London as an importer of standard roses, has upwards of 300 orange trees from four to sixteen feet high, and has no better place than the sheds under a cotton manufactory in which to winter his trees; and many other instances I could mention, if necessary.

There is another thing that I have often observed in France, namely, that orange trees in small wooden boxes, made according to the size of the plant, always thrive better than in pots. The reason, I presume, is merely this, that the boxes generally stand on four small feet, about two inches from the ground, and of course always keep the plants free from stagnant water, which orange trees cannot endure without injury.

I am, Sir, yours, &c.

Upper Clapton, *Nov.* 29. 1830. R. S.

Art. XIX. *On cultivating the Pine-apple out of Pots.* By Mr. William Bowers, Gardener to Mrs. Shaw Lefevre, Heskfield Place, Hartford Bridge, Hampshire.

Sir,

I beg to say that I have treated my fruiting pines, these last three years, in nearly the manner described by Mr. Mitchinson, Vol. VIII. p. 576.; only that, instead of turning the plants out into mould, I turn them out, and bury the plants six inches deep in half-decayed leaves: the plant roots well into the leaves, and the suckers also make sufficient roots before taken off. I find by this treatment that I get my fruit and suckers both much finer than when I fruited them in pots; and there is much less expense and trouble during the fruiting season, as I never give any heat into the pit after the plants are turned out. The plants never require any water, except syringing over them in a high temperature. The gardeners who have seen this treatment approve it very much; and I make no doubt of its becoming generally practised, particularly when pines are grown on a small scale. My succession plants I treat in exactly the manner described by Mr. Mitchinson. I am, Sir, yours, &c.

Hartford Bridge, Oct. 1832. Wm. Bowers.

Art. XX. *A Mode of cultivating Grapes and late Peaches.* By Mr. J. Haythorn, late Gardener to Lord Middleton, Middleton Hall, near Nottingham.

Sir,

A succession of grapes all the year round is, I think, best obtained by having a circular house of from 20 to 26 yards in circumference. For a small family, 26 vines would be sufficient. Two fresh vines should be introduced into the house every month: these should be taken down as soon as the fruit is cut; which would thus give room for others to spread as soon as they showed fruit. I suppose each vine to produce from 30 to 40 branches, without over-bearing.

For a late crop of peaches, the back part of the house should be supported by pillars placed under each rafter, the interstices to be filled up with wood panels. The trees must be of late-bearing sorts, and trained on a trellis at the back of the house. When the crop is gathered, and the wood is ripe, remove the panels from the north side of the trees to the south, exposing the trees to the north: the panels must be fixed close under each rafter. The pillars and coping would guard the trees against perpendicular rain and side storms. When the crop is nearly over, vines may be introduced in front for early grapes; after gathering the crop and ripening the wood, the house may be thrown open, and the panels removed to the north side of the peach trees, which would not require glass till late in the season.

The houses might be of any length, but both should command a good heat. A circular stage might be erected in the vinery, for pots of vines, figs, or flowers.

I remain, Sir, yours, &c.

Wollaton, Sept. 16. 1829. J. Haythorn.

Art. XXI. *A Description of a Pit suited to the Culture of early Cucumbers, and of a Mode of cultivating them.* By Mr. Edward Elliot.

Sir,

I beg leave to present to your notice a plan for growing early cucumbers, which I have found to answer very well. The plan is as follows: — Let a three-light pit be made of the usual size, and having the appearance of M'Phail's plan, except in the open work being stopped up; the flues to be continued round the sides of the pit, and one flue to go under the bottom lengthwise in the middle, but no cross flues, as in M'Phail's plan; the sides of the flue in the bottom of the pit to be filled up with broken bricks or stones, to make it level; the top of the pit, and the lights, to be as in general. Next, opposite the two rails, about five feet from the front of the pit, let two wooden trunks be sunk in the ground till they come to a level at the top; the height of the trunks to be about eighteen inches, the space in the middle to be about five inches square. Then let two lead pipes be laid from the pit to each of the trunks, one end of each pipe to enter the trunk about half way to the bottom, the other end to be applied to the pit: each pipe to emerge from the ground about eighteen inches before it reaches the pit; then with an easy turn let each pipe be carried up the side of the pit; one pipe from each trunk to enter the upper part of the flues; the other two to enter above the flues, one under each rail that supports the lights. Next, let there be two pieces of small pipe, about two feet long; let one of these pieces be applied to each end of the pit near to the back leading from the upper part of the back flue to the top of the pit, the back flue being one brick higher than the others. The two front pipes that enter the flues are to keep them constantly supplied with warm atmospheric air, and the small tubes at the ends are to take away the nocturnal vapour which has no other means of escape. This vapour, on being confined in the flues, and having no means to escape, must of necessity force itself through the earth in the pit, and consequently become very injurious to the roots of the plants. The other two pipes that enter under the rail are to convey warm atmospheric air among the plants, which is constantly passing into the pit, and escapes at the back of the lights; they being a little raised at the back, and a small piece of board being pegged up against it, to keep the cold winds from blowing under. Thus there is a constant supply of fresh warm air day and night. The size of the large pipes is an inch and three quarters; the small tubes are three quarters of an inch. When I sow my seeds, I use a small rack suspended from the rails that support the lights with some pieces of board on it: the seed pot, being placed on it, remains till the seed has come up; the plants are then potted off, and placed on the suspended rack till it is time for them to be turned out of the pots; they are then transplanted into small hills of earth on the suspended racks, with some bricks laid flatwise, to keep the earth together; and as the plants increase in size, they are supplied with fresh earth. I find that cucumber plants managed this way do much better than in the usual way of ridging them out on the earth in the pit; for they grow stronger and more healthy, and they will show fruit much better and finer. Just before the fruit is in bloom, the plants are removed from the suspended rack, which is done by placing a hand glass over the plants on the rack; then having the lining levelled by the side of the pit, lift the suspended racks out of the pit, and place them on the lining, clean out the top earth that is in the pit, scald the sides with hot water, and put in a sufficient quantity of warm fresh earth; next take off your hand glass, and, having two sticks, place one under each end of the boards that have the plants, and gently take them off the rack, and place them on the fresh earth in the pit where they are to remain; then, by placing a small piece of board against the earth that contains the plants (the bricks having been removed), gently draw away the two outside boards; the middle one is drawn out endwise, it being divided in the middle, and in that part rests on brackets attached to the two outside boards. Here you will find that all the roots of the plants are alive and healthy, which is the reason why the plants retain their health and strength; whereas, in the original way of ridging out the plants when small, it is well known that they often lose their bottom roots, which causes the plants to become weak, and seldom or never do well after; but in this way of ridging out from the rack, you will find that the plants will grow very freely, and you will soon cut fruit. I have ridged out with fruit in bloom, and cut the second week after. Cucumbers grown this way will produce fruit much sooner, and continue to do well, and are not liable to be injured by the cheese bugs (or wood lice), as is too often the case. I recommend the air pipes to be stoppled when the linings are changed, till the heat has recovered again; then let them be open as before. The boards that are put on the suspended rack are three, of a breadth which forms a square; the middle board being divided across the middle, which makes four pieces; the rack is suspended by four pieces of chain, which hook to any height that may be required.

I am, Sir, yours, &c.

The Rev. Ford Gildart's, EDWARD ELLIOT.
West Wickham, Kent.

ART. XXII. *On the Pruning and Training of the Morello Cherry Tree.* By Mr. WILLIAM SEYMOUR.

Sir,

CONCEIVING that the morello cherry (which is generally allowed to pine away under the uncongenial influence of a northern aspect) is almost unnoticed by any of the numerous friends of horticulture, and that it merits a small share of notice, I shall endeavour to offer a few hints on its culture, which may be found of some service to some of your young readers, like myself. The mode that I adopt is, to form the tree on the same principles as those on which the peach tree is formed (*fig.* 17.) (to which the morello cherry has a great resemblance in its growth), and to be particularly attentive to the young main branches of last summer's growth. While these are strong, and supplied with wood buds, we should retain such as are well placed and likely to produce shoots for future bearing, at about a foot distant, on the upper side, if they can be got (but that cannot always be accomplished, from the buds being single, and part of them blossom buds), and displace those not wanted, in order to strengthen the shoots retained. (*fig* 17. *a a a.*)

At the winter dressing, the young bearing shoots of last summer's growth must be neatly nailed to the wall, and not

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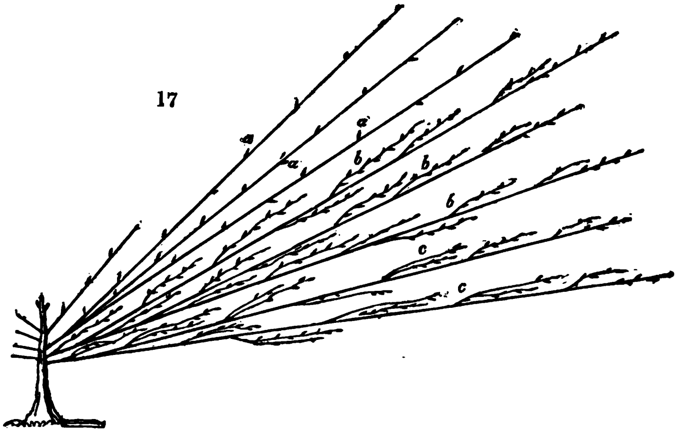

shortened, as the buds towards the termination of these shoots are generally blossom buds. (*fig.* 17. *b b b.*)

In the spring following, it will be found that the bearing shoots of last summer's growth will have a wood bud at the termination, and a few small wood buds (for studs or spurs) at the base of each of them, which must be carefully preserved; but the terminal bud must be stopped as soon as it has grown an inch or two, by which means it will throw strength into the blossom and the small buds below, and cause some of them to grow, and make shoots for the next year's bearing. (*fig.* 17. *c c.*) These must be nailed to the wall, to prevent shade, and to ripen their wood. If two or more of those buds should spring, the lowest of them must

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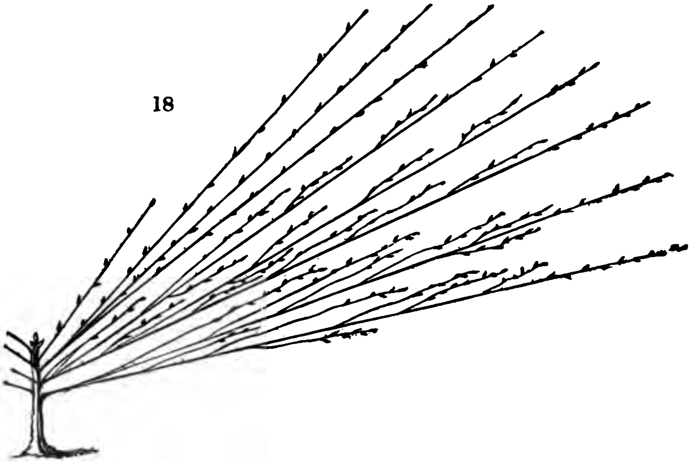

be retained, and the other displaced; and, soon after the fruit is gathered, the shoot that bore fruit must be cut back to the young one before mentioned, at the base. By these means you will keep the tree continually supplied with young bearing wood, and consequently free from the confusion of weak naked shoots that in general fill the morello, by permitting the terminal bud to proceed, and go one beyond another, as in the old method, producing a tree something like *fig.* 18., which is nothing but a mass of confusion, and unable to produce a crop of fine fruit, from the enormous load of useless wood that it has to support.

I am, Sir, yours, &c.
WILLIAM SEYMOUR.
Palace Gardens, Bishopthorpe, Oct. 23. 1831.

ART. XXIII. *On the Culture of Onions.* By Mr. JOHN MITCHELL, Jun., Gardener, Slapton, near Dartmouth, Devon.

Sir,

THE crop of onions, this year, has been universally productive in the neighbourhood of Slapton. Encouraged by your insertion of a letter from me, on a former occasion, (Vol. VIII. p. 469.), I trouble you with this, for the purpose of communicating to you the result of an experiment which I made this season in sowing a bed of onions in the garden of J. Deere, Esq., of this parish.

The soil of the garden is a decomposed argillaceous slate, reduced to a fine mould, to the depth of one foot; beneath the mould it is rubble, or the slate broken into small fragments mixed up with earth, for the depth of more than another foot; it having been broken up with pickaxes for the purpose of deepening the soil, about three years since. Where I sowed my onion crop, the soil had been dressed like the rest of the garden, and not treated better. The bed was 14 ft. long and 8 ft. wide. On the 28th day of February I sowed my seed, which was of the Deptford sort. My employer, Mr. Deere, has all his crops sown in drills; a mode very rarely practised in this part of the country, where prejudice and ignorance prevail, to the exclusion of all improvement. I made my drills at 18 in. apart, and raised between them crops of radishes and Patagonian lettuce. During the spring and summer we were much occupied in the formation of a new kitchen-garden, and other work, to the neglect of my onion crop. The radishes were drawn as they became fit for use; but the lettuces were permitted to grow too late, and the onions were omitted to be timely thinned. The lettuces were at length drawn, the onions were thinned, and wood ashes (here called hearth ashes) were, at two different periods, spread over the bed, and the intervals between the drills dug, and frequently stirred afterwards. The consequence of this treatment was soon visible in the rapid growth of the plants, which before were small and stunted, from the neglect of thinning, &c.

I do not follow the plan of prematurely stopping the growth of the onion by breaking the stalk, but permit it to grow as long as it will. When the stalk breaks down of itself, I draw up the onion. Such being my daily plan, my crop, of course, is in the progress of drawing for many days; and, when drawn, I lay them out in rows to dry, and occasionally turn them over.

I housed my crop on the 2d of this month (October), and it contained 204 onions, weighing 108 lbs. Many were 15 in. in circumference, their weight being as many ounces. One weighed 1 lb. 2 oz.; and a rope or string, containing 38 onions, weighed 28 lbs. Where the Patagonian lettuces were permitted to grow, there the onions were all dwarfs. That circumstance, of course, tended most materially to lessen my average weight. Had proper care and attention been paid to the crop in an early stage, I am convinced that the weight of it would have been more than double. The object of my experiment has, however, been obtained; namely, to prove that wide cropping, and the admission of air to the roots, by frequently stirring the soil between the drills, are the means to obtain large onions.

Comments I will not add to my plain narrative. Should you, or your correspondents, favour me with comments, they will assist a young gardener in forming his opinions, and in increasing his knowledge. I am, Sir, yours, &c.

Slapton, near Dartmouth, JOHN MITCHELL, Jun.
October 10. 1832.

ART. XXIV. *Remarks on Cobbett's Indian Corn.* By WILLIAM ROTHWELL, Farmer and Nurseryman, Spout Bank, near Bury, Lancashire.

Sir,

ALL that Mr. Cobbett either says or does, with some persons, is right; with others, it is always wrong. I pay little attention to either class, but judge for myself. I have been a cultivator of his Indian corn for three years, but only to the extent of a few rows each year; however, I consider this sufficient to form a pretty correct idea of its habits, produce, &c. I always say that all farming and gardening experiments ought to be tried three or four years before a decided opinion be given upon them; as the seasons vary so much, and there are such varieties of soil, that a correct one cannot be formed in one season, or upon one kind of soil. I always say that Mr. Cobbett was premature in writing his book on the cultivation of his corn. The first year (1828) he cultivated it at Barn Elms was a fine season; and I have not the least doubt but it would ripen then well and early: but, if he had waited two years longer, and had taken into consideration the soil and situation, he would not, I am sure, have said quite so much in its favour as he has done. After the trials I have made of it, I am of opinion it will never answer, as a general crop, upon a farm in the greater part of England and Scotland. Except it can be made more hardy than it yet is, by naturalisation, it will never ripen in every situation and in every season in which wheat will. In some of the southern counties of England, and, indeed, in some of the best parts of Scotland, I have little doubt but it would answer; and might be made a profitable crop upon a farm, as I consider it a valuable grain for feeding cattle, horses, pigs, and poultry. Mr. Hunt says it is worthless for this purpose. I happen to have some rats and mice (and I shall believe them before him), which prefer it to either oats, beans, or peas: I have not tried them with wheat and barley; but, if he were to say that the former are worthless, we should know what to think of him. In situations where the Indian corn will answer, it will be found an excellent fallow crop, as no one will admit of such close tillage as it; neither do I consider it so exhausting as potatoes, Swedish turnips, beet root, or cabbage. It is very delicate when in the seed leaf; and, in my opinion, should never be sown or planted earlier than the middle of May, for if a few chilly nights come, when in this state, its growth will be much retarded, if not destroyed. Last year, the produce from seed taken out of the same ear, and sown in the middle of May, was ripe before that sown in the middle of April. The best manner of cultivating it is in rows, 30 in. or 3 ft. asunder, and the plants from 6 in. to 12 in. asunder in the row. The seed ought to be sown as thick in the row as beans; and when the plants are about 3 in. high, they should be thinned out to the proper distance, which ought to be regulated by the richness or quality of the soil. By these means, there is sure to be a sufficient number of good plants to stand for a crop; except there be a total failure, and then the land will be ready for turnips. It is folly to talk of sowing no more seed than you intend to have plants upon the land.

It is a common practice with a great number of farmers, whenever a new plant is introduced, or a new method of cultivating an old one, and a failure takes place, to condemn the plant or the system at once; forgetting that the most common crops fail in some seasons, and there is scarcely one passes over but there is some part of the crops upon every farm fails: therefore, we ought not to be premature in our condemnation of any experiment. The soil in which I have grown the corn is a light sandy loam, and far from being fresh; the situation is rather high, and exposed to the west and north-west. In 1829 the season was rather wet and cold here, particularly so when the plants were in bloom; and, in that season, only about one fourth of the crop came to maturity, and some of the ears in this portion were imperfect. In 1830 the season was, throughout, wet and cold; not one ear came to perfection. That season, I finished reaping my other corn crops upon the farm on the 30th of September; last year, I finished reaping on the 31st of August, and gathered my Indian corn quite ripe the 30th of September, with the exception of a few ears which were neither quite ripe nor perfect. The fowls found these before they got ripe, and took every grain. I intend to continue my experiment, and always to sow from the seed of the preceding crop. This year I intend to sow on various kinds of soil. I consider the straw quite as valuable as that from any other kind of grain; and the produce of grain will, I think, be near double that of wheat from land of the same quality.

I am, Sir, yours, &c.
William Rothwell,
Farmer and Nurseryman.

Spout Bank, near Bury, Lancashire,
Feb. 25. 1832.

Art. XXV. *On O'xalis crenàta* Jacquin, *as a Culinary Vegetable in Britain.* By James Mitchell, Esq.

Sir,

I have the honour to send you some tubers of the *O'xalis* crenàta, dug up, on the 5th instant, in the garden of Great Roper's Hall, near Brentwood, Essex. I was one of a party where some tubers of the same plant were cooked, by boiling for ten minutes; and they were, on trial, declared, by all present, to be more agreeable in their flavour than the common potato. It is not possible to give an idea of a flavour in words; but, if I were to attempt it, I should say, it was that of the potato slightly combined with the chestnut. I have been informed that the tuber of the O'xalis crenàta was brought from South America by Mr. David Douglas, and was planted, in 1831, by Mr. Lambert. One of the tubers obtained from Mr. Lambert was planted by Mrs. Hirst in a pot in the green-house, in the end of April last, and, in the month of May the pot was removed to the flower-garden and broken, and the parts removed. It was first planted in the green-house as a security against frost; but it appears to have been unnecessary, as the plant has stood the frost remarkably well, and the leaves, on the 5th instant, before the tubers were dug up, were quite green. The tuber planted was less than an ounce in weight, and the tubers produced were ninety in number, and weighed altogether upwards of 4 lbs. They were in a space, the diameter of which was 9 in., and the depth 6 in. The stems were between twenty and thirty in number, succulent, and of a reddish colour. The flowers appeared in August, and consisted of five petals, crenate at the edge, and of a yellow colour. The leaves are trifoliate, the leaflets are inversely heart-shaped.

The experiment of cultivating this tuber may be considered as hitherto very successful; and when we consider that the common potato was long confined to gardens, producing roots which were exceedingly small, and was far less promising than the O'xalis crenàta at present appears; we may reasonably anticipate that it may prove a valuable addition to our culinary vegetables, and that, by skilful cultivation, the tubers may be greatly increased in size.

I am, Sir, yours, &c.

Jan. 10. 1833. JAMES MITCHELL.

A GOOD figure and an interesting account of the O'xalis crenàta were published in the second series of Sweet's *British Flower-Garden*, t. 125., about a year ago. It should be remembered that the autumn and close of 1832 have been remarkable for their mildness, and for being almost totally free from frost. A notice of this plant has been already given in Vol. VIII. p. 16. — *J. D.*

Art. XXVI. *Short Communications.*

Mole-Trap in Use near Monmouth. — Sir, Much having been said, in your useful and interesting Gardener's Magazine, respecting mole-traps, allow me to offer one to your notice which has long been in use near Monmouth. When I lived near that town, I employed a man who then lived at Penault, near Monmouth, to catch my moles, or wunts, which, although they abounded in very great numbers, he did most effectually, at a small expense, considering the destruction, after the box-traps were provided and the first year paid. The contrivance is a fall-trap, made by a square piece of wood or trough, the hollow in the inside about three inches diameter in the square, made of four pieces of wood about three eighths of an inch thick; the whole of the trough being about two feet long. In the centre of this a movable bit of wood is fixed, or rather worked on a strong wire, which, as the animal passes over it, lets him fall into the trap, from which there is no return. To this trough is fixed in its centre, by a willow twig, a box (well planed within), much like a microscope box in form, about eighteen inches deep, and about four inches' diameter in the clear at top. But as your Magazine is universally read in the neighbourhood of Monmouth, no doubt some one there or elsewhere, where this trap is in use, will see this notice, who can furnish you with a drawing of the trap, and can give you a better description of it than I am capable of doing, as I have not even seen one for these twenty years past. I think, where moles are in but small quantities, the traps already described in your Magazine may do very well; but where they abound in vast numbers, as they do near the woods in the neighbourhood of Monmouth, they are inefficient for the purpose. The only objections I see to the fall-traps are, the first expense of traps, &c., and their great cruelty, as, when the traps remain for some length of time uninspected, the moles devour each other. I am, Sir, yours, &c. — *Thomas Hawkins. The Haw, near Gloucester, August* 1. 1832.

A very cheap Iron Field-Gate. — Sir, With this I send you a sketch (*fig.* 19.) of an iron field-gate, which I think you will allow that I am warranted in calling very cheap, when I inform you that it can be supplied for 26*s.* singly, but, if in quantities of twenty and upwards in number, for still less. For strength in the construction, and durability of material, I have not as yet seen a gate at the same cost to compete with mine. It is made of wrought iron, and the horizontal bars and braces are of flat bar-iron, riveted together at every intersection, in order to prevent the swagging or sinking of

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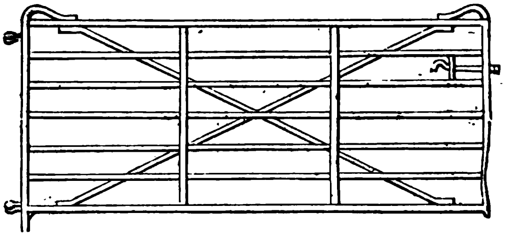

the head, as it is called. Mr. Telford's iron gate, noticed in Vol. VIII. p. 85., does exceedingly well for the purpose for which it was contrived, viz. for toll-gates on public roads; but that it is not calculated for general use, as a farm gate, is quite evident from a mere inspection of the drawing there given, when it will be seen that pigs, sheep, &c., may readily pass through it; besides which, the cost would be considerable, on account of the extra-labour and weight of material, such gates being very heavy. In asserting this, I am speaking from experience, having made gates upon the same design. The gate of which I now send you a sketch, I consider well adapted for farms; because, from its great durability, it will be found more economical than a wooden gate. I am, Sir, yours, &c. — *George Cottam. Winsley Street, London, March* 6. 1832.

The Egg Plant (*Solànum ovígerum* Dunal, S. Melongèna *L.*). — I remark you are about to publish a Supplement to the *Encyclopædia of Plants.* I subjoin some synonymes of the Solànum *Melongèna*, if you choose to make use of them: — Egg plant, *English;* Aubergine, *French;* Corne de' Greci, *Italian;* Bahmia, *Smyrna;* Ocha, *West Indies.* It is generally used at Smyrna, in France, Italy, and the West Indies (that is, the purple varieties, long, and round) as a vegetable; but, though I have tried different methods of cooking, I have always found them too high in flavour to suit my palate, or that of any of my friends. They are hot, burning, sweet, and acrid, when fried. I have grown the round 8¾ in. in circumference, and 5 in. in length; the long, 7 in. in length, and 6 in. in circumference; in rich garden soil, under a high paper frame (like a house), without artificial heat. — *J. C. K.*

REVIEWS.

Art. I. *Transactions of the Horticultural Society of London.* Second Series. Vol. I. Part I. 4to. London, Hatchard.

(*Continued from* Vol. VIII. p. 439.)

18. *Journal of Meteorological Observations made in the Garden of the Horticultural Society at Chiswick during the Year* 1828. By Mr. William Beattie Booth, A.L.S.

This paper occupies 16 pages, and is illustrated by an engraved diagram.

19. *An Account of the striped Hoosainee Persian Melon.* By Thomas A. Knight, Esq. F.R.S., President. Read Oct. 4. 1831.

Mr. Knight believes that the seeds of many different varieties of melon were received from Persia under the same name. The striped Hoosainee was introduced in 1824; and from Mr. Lindley, in the winter of 1830, Mr. Knight received seeds. From these one plant only was produced, and this so feeble, that it was difficultly kept alive; but by great care, and by engrafting two of its feeble lateral shoots upon two of the plants growing in contiguous pots, he succeeded in obtaining three melons. The plant offered blossoms very freely, and would have borne fruit much sooner than it did; but, when "I wish to preserve the seeds of the fruit, I never suffer fruits to set, nor even blossoms to unfold, till the powers of the plant to nourish its fruit have been given time to accumulate." Of the three melons, the largest weighed not more than four pounds; their form oval, a third longer than broad; their colour dark-green, in broad stripes, with narrow intervals of dull white, which became faintly yellow, as the fruit, which was much netted, approached maturity. The pulp was externally green, but more internally pale red, excessively juicy, and more perfectly melting than that of the finest Ispahan; and its juice was more sweet and highly flavoured than I had ever previously found that of any other fruit of the species to be. Gardeners and other persons all expressed the same opinion of its merits. Mr. Knight grew and ripened his fruit very slowly; but all ripened well without bursting, and remained sound and perfect a fortnight after they had been gathered, and all became externally very soft, without exhibiting any symptoms of approaching decay.

As soon as Mr. Knight discovered that one very sickly plant was the sole result of the first packet of seeds, he obtained a second packet, from which six plants arose. "All these afforded striped fruits; but the pulp of five was perfectly white, and that of one, which possessed no merit, was deep yellow, as in common melons; and the fruit of almost every plant differed, to some extent, in form and external colour. The pulp of four of the varieties, which I retained, was perfectly white, and very tender, and the juice very abundant and very sweet; but the pulp was not in any of them what I could call melting." The melons produced by these plants all burst before they became perfectly ripe; but Mr. Knight conceives this probably owing to giving water holding manure in solution too abundantly, and till too late a period; his object being perfect seeds rather than perfect fruits; and he hopes that the imperfection of the pulp arose from the imperfect maturity of the fruit, in some degree at least. Mr. Knight, expecting his six plants, raised at the second sowing, would all produce perfectly similar fruits, employed the pollen of all indiscriminately, but as the pulp of one of them was yellow and worthless, he is doubtful of the character of the fruit which may spring from the seeds produced. He has obtained pure seeds of one of the white-fleshed varieties, but doubts the permanence of the habits of these varieties, even from seeds preserved free from hybridisement.

20. *Upon the Preparation and Management of Plants during a Voyage from India.* By N. Wallich, M.D. F.R.S. &c. Read July 19. 1831.

Dr. Wallich, during his residence in India, has "had many opportunities of judging how far the various modes of packing plants for their voyage to Europe are successful, or otherwise;" and in his somewhat recent voyage to Europe, by bringing with him a considerable number of living plants, has had personal experience "of the gradual influence of those successive changes of climate to which plants are exposed during their transmission." He considers the condition of the individual specimens to be transported a material point, and one usually not enough attended to. "Very often plants of tender age, or already weak and sickly, or grafts only recently or imperfectly united to their stock, are crowded together hastily into the travelling-cases, and put on shipboard without being sufficiently rooted. These soon perish, or become so sickly, that, if their lives hold through the journey, they perish presently after; it is, in consequence, recommended that plants already advanced in age, with a strong root and thick stem, should invariably be selected; and that only such grafts be chosen as have already been firmly established for two or three years on old healthy stocks."

"In packing, the following directions particularly require to be observed:—That the packing cases may not be troublesome, unwieldy, and unsightly, no case should be more than three feet long, eighteen inches in width, and sixteen in depth below the roof; I have taken these dimensions from a due consideration of the places where plants are generally stowed on board ship, namely, on the poop, or in front of the cuddy. The depth of the roof should be sixteen inches more, so that the shutters, when opened, will be the same depth as the sides of the boxes. The breadth of the upper rail should be five inches, which will admit of a piece of *painted* canvass, sufficiently large to cover the whole sides, to be rolled upon it, and fixed to each side.

"I would here observe that I would on no account use the common tarred canvass, which is a very imperfect defence against rain and sea spray; and that, whenever a number of chests are to be placed in a row close to each other, it is preferable to use one piece of canvass instead of many. Some attention should also be paid to the neatness of the appearance of the cases, as captains are very unwilling to allow the deck to be occupied by unsightly objects: they should be well clamped together with iron, and painted. On no account should holes be bored in the ends for passing rope handles through; the latter are perfectly useless. The roofs should be glazed either with stout glass, or with the Chinese oyster shell, or with plates of thick talc.

"Each plant should have a separate square pot, made of wood, of such a size that eight should be contained in each case: they should not fit too tightly together, but should be so contrived that any one may be lifted out without disturbing the remainder. This [besides conveniently enabling any thing to be done to the plants individually] renders it easy to replace deaths, if the ships touch at any port on their voyage. The pots should have three or four holes bored in their bottoms; but there should be no holes in the bottom of the chest; for it is at such apertures that rats on ship-board always commence their depredations, and there is no advantage whatever in the holes. Between the bottoms of the pots and the bottom of the case should be a layer, three inches deep, of broken glass and pebbles; the former renders it impossible for vermin to establish themselves in the cases. The cases should be raised two inches from the deck by little feet.

" In the treatment on board, too much attention cannot be given to exposing the plants to the open air at all times when the weather will admit of it. As a general rule, it may be said that the boxes should be kept shut as long as the sun is above the horizon, and opened during the night, whenever the weather appears steadily fine. Where the cases are placed under the awning, the former precaution is less necessary; and a due consideration of the changeableness of weather at sea will of course direct particular attention to closing the roofs, if bad weather come on. Whenever a shower falls, the plants should be fully exposed to it, taking care, at the same time, that too much moisture be not admitted.

" With regard to watering, it is desirable that the captain should provide for each plant one pint a day; because, although in rainy weather no water is required, yet, if the weather is very hot, a larger allowance than this may be necessary. The water should be given in such a manner that the leaves and branches may be refreshed, besides the root; *part* should therefore be sprinkled over them, the rest poured on the earth. Generally, half a pint of water should be sprinkled over the plants before you shut them up in the morning, and the same quantity when the cases are opened in the evening; a greater quantity will, however, of course, be given in hot dry weather, than when the sky is overcast, and the air moist. It has happened, in the large collection brought home by myself, as well as in another which came subsequently in the same ship [the Orient, Captain Thomas White], that such was the vigour with which plants thus treated grew, that it was frequently necessary to have recourse to the knife, in order to check their luxuriance.

" When the plants have arrived in England, they should not be immediately taken from their pots, but allowed to remain in them in a conservatory or hot-house, according to the nature of the plants themselves, or the season of their arrival. Water should be sparingly given, and the plants well cleansed from the dust and other matters which may have collected on their leaves during their voyage."

The doctor concludes his valuable paper by confessing that, " after all, the success of a consignment of plants depends so much upon the good-will of the captain, and his disposition to promote the objects contemplated, that, unless both interest and zeal concur, even the best arrangements will be frustrated." Dr. Wallich was fortunate in having to cooperate with Captain White, in whom were both these qualities.

21. *Some Account of a new Cherry, called the Early Purple Guigne.* By Mr. Robert Thompson, Under-Gardener in the Fruit Department of the Garden of the Society. Read June 1. 1830.

The May Duke is our best early cherry, but others of great excellence ripening at the same time as, or soon after, it, have lately been added to our catalogues and collections. Of these, Knight's Early Black and the Black Tartarian are of the highest merit. "But as the difficulty of procuring fruit is greater in May and the beginning of June, than at any other period of the year, the Early May cherry has long been cultivated as the early substitute of the May Duke, because it ripens, or rather colours, about a week before the May Duke, although it really does not possess a single good quality." The relative merit of this new kind, the Early Purple Guigne, consists in that it is "superior to the Early May in size and quality, and ripens even earlier;" and on the ground of these qualities it is thought "an acquisition of the greatest importance." When this Early Purple Guigne, the Early May, and the May Duke, are grown in similar situations, the Early Purple Guigne is in full perfection when the Early May is barely ripe, and when the May Duke is quite green: it may be said to ripen about a fortnight earlier than the May Duke, and to be fully equal to it in quality. Its fruit "is of a good size, somewhat heart-shaped and compressed; its footstalks are long, of moderate thickness, rather deeply inserted in an almost round cavity; its skin is of a shining dark purple colour when the fruit is well ripened. The flesh is purplish, juicy, tolerably soft and tender, with a sweet rich flavour. The stone is of a middle size, of a roundish ovate figure: ripens on an east or west wall in the first week in June: on a south aspect it may be obtained in the end of May. Has been distributed from the Society's Garden under the erroneous name of the Early Purple Griotte; which misnomer arose from its originally and accidentally forming one of a collection received in 1822 from Geneva, named Griotte de Chaux.

22. *On the Means of prolonging the Duration of valuable Varieties of Fruits.* By Thomas A. Knight, Esq. F.R.S., President. Read May 3. 1831.

Mr. Knight believes that all the constitutional properties of every variety of fruit are contemporaneously inherent in all the plants which can be made from the buds of that variety, if taken as they usually are from the branches, be the mode of multiplying the buds of these branches into plants what it may. No trees of any variety "can be made to produce blossoms or fruit, till the original tree of that variety has attained its age of puberty; and under our ordinary modes of propagation by grafts and buds, all [the individual plants of any given variety, as we understand it] become subject, within no very distant period, to the debilities and diseases of old age. It is therefore desirable that the planter should know at what periods of their existence varieties of fruits are most productive and eligible; and by what means (if any exist) the deterioration of valuable varieties may be prevented or retarded." Mr. Knight has been accustomed to consider "that each variety possessed its greatest value in its middle age," but now believes "that, in vegetable as in animal life, the most prolific period is that which immediately succeeds the age of puberty." Out of a good many experiments which led Mr. Knight to this conclusion were these: — From seedling pear trees twenty years of age, and which had borne their first fruit in the preceding autumn, he, in July 1828, took from the extremity of their leading branches buds, and inserted them into seedling pear stocks, then only four months old. Many of these budded plants, although not transplanted, nor subjected to any peculiar mode of treatment, produced blossoms abundantly vigorous in the spring of 1831, and consequently at but three years from the date of their springing from the ground. Mr. Knight remarks: — "I never previously saw, and I do not think that any other person has seen, in this climate, fruit produced by pear trees at so early an age. I had previously made the same experiment with apple trees, with the same results." Mr. Knight laid some branches of a plum tree, which had not attained the age of puberty, which (as he expected) freely emitted roots; but he found, contrary to his expectation, that the young shoots which these layers had produced afforded, in the following spring, much blossom. The variety of plum experimented on, Mr. Knight believes to be one exceedingly productive of blossom: "but," he adds, "I doubt much if such blossoms would have appeared, if the variety had been a century old." Thus, while Mr. Knight hence infers that grafts or seeds taken from the bearing branches of very young seedling trees afford trees capable of bearing freely at a very early age, and, in consequence of their youthfulness, likely to continue to grow with health and vigour; yet he readily admits that this information will not subserve the object of prolonging the duration of existing varieties of fruits, if every part of seedling trees is in the same degree affected by age. This, however, Mr. Knight states, is not the case; for "the decay of the powers of life in the roots of seedling trees is exceedingly slow, comparatively with [the decay of the powers of life in] the bearing branches. Scions [shoots] obtained from the roots of pear trees of 200 years old afford grafts which grow with great vigour, and which, in many cases, are covered with thorns, like young seedling stocks; whilst other grafts, taken at the same time from the extremities of the branches of such trees, present a totally different character, and a very slow and unhealthy growth. I do not, however, conceive that any scion [shoots] which thus springs from the root of an old tree possesses all the powers of a young seedling tree; but it certainly possesses no inconsiderable portion of such powers; and I have proved such scions to be capable of affording healthy trees of a considerable size.

" If grafts or buds were taken from such scions [shoots], on their first emission [from the roots], much time would elapse before any blossom would be produced; but, if buds were not taken from such scions [shoots] till the branches attained the age of puberty, no loss of time whatever would subsequently occur.

" The branches of the plum tree, in the experiment above mentioned, emitted roots just at the period when they had attained the age of puberty; and I do not doubt but that scions [shoots] from the roots of these will spring from the soil, in full possession of all the powers attached to the branches from which they derived their existence. My own experience leads me to think that trees of the pear, the apple, and the plum may be better raised by layers and cuttings of the roots, than by the methods usually practised, and at less expense."

Mr. Knight remarks, in conclusion, that the permanent preservation of valuable and new varieties of fruits, of which the Society's garden contains many, in their pristine and present state of health and vigour, appears to be an object of great importance; as does the retardation of the decay of many varieties, " such as the Cornish Gilliflower apple, which, in my estimation, is and always was without a rival in the climate of England."

23. *On the Propagation of the Balsam* (*Impàtiens* Balsamìna L.) *by Cuttings.* By Mr. G. John Towers, C.M.H.S. Read Oct. 18. 1831.

Mr. Towers had raised balsam plants from seeds received from Madras, which grew sufficiently; " but scarcely any of them exhibited, throughout the summer, the slightest appearance of producing flowers. Finding this to be the case," he says, " I took a small cutting at the extremity of one of the upper lateral shoots, about three inches long, and not so thick as a goose-quill. I cut it off just below a leaf, removed that leaf, and planted the cutting an inch deep, in a very light sandy compost, similar to bog earth; plunged the pot (a 60) in a hot-bed of leaves, and covered the cutting with a glass. The earth was slightly watered, and subsequently kept in a moist state. This was done on the 28th of August; by the 12th of September the cutting had formed roots, and was growing; the glass was removed, and flower-buds soon after became apparent." By the 12th of October the plant had become eleven inches high, and had expanded two flowers, and more were ready to follow. By this time, also, five other cuttings of a balsam, taken off in the middle of September, had struck, were growing freely, and had each protruded blossoms. All this time the original seedling plants had "evinced no sign of producing blossom." Mr. Towers's object was to obtain plants for preserving alive through the winter, that he might not lose the kind, of which, as the balsam is annual, and as his seedling plants neither flowered nor seeded, there was every prospect. To promote this perpetuation, Mr. Towers deemed it advisable to pinch off all the flower-buds from the plants formed from the second set of cuttings.

(*To be continued.*)

Art. II. *Memoirs of the Caledonian Horticultural Society.* Vol. V. Part I. 8vo. Edinburgh, Maclachlan and Stewart.

(*Continued from* Vol. VIII. p. 442.)

2. *Notes respecting Trees, Shrubs, economical Plants, and other Objects of Horticulture, as they occurred at different Places on the Rhine, and in France, in the Years* 1824, 1825, *and* 1826. By W. A. Cadell, Esq. F.R.S. Read March 4. 1830.

The tubers of the *Láthyrus*, tuberòsus, boiled, are sold in the streets of Nimeguen in the month of August. At Heidelberg almonds are grown for sale on standard trees. At Schwetzingen the mistletoe is common on the poplar; at Carlsruhe, on the Scotch pine, and at Strasburg on lime trees. In Britain the mistletoe does not occur naturally farther north than about 54½°; but it is met with in some gardens near Edinburgh, in lat. 56°. "It is stated by authors that the Lombardy poplar was introduced at Pavia from Asia, about the year 1590, and only the male plant (see Vol VI.

p. 419.). An oil is made from beech mast in the neighbourhood of Baden. Strasburg, situated in a fertile country and favourable climate, is celebrated for the cultivation of kitchen-garden stuff and fruit trees. Grapes and figs ripen there in the open air. The fruit of Córnus máscula and of Sórbus doméstica are brought to market. A spirit is made from plums, as well as from cherries. Currants are common, but not gooseberries. Wood strawberries are abundant in June, and also bilberries. Before cabbage is sliced for *sauer kraut*, the core or central part is taken out with a conical iron scoop. [In pickling red cabbages in some parts of England, the lower part of the core is cut out with a knife, it being found not to keep so well as the leaves, and to give a strong taste to the vinegar. — *J. W. L.*] [In the kitchens of the colleges at Cambridge, apples are freed from their cores with an instrument like a cheese-taster, and this may be called a conical iron scoop; its figure resembles that of the capital letter Y, and the branches are for the handhold; the apple is held in the left hand, and bored through stalk, core, and eye at once, and a cylindrical plug is brought out. — *J. D.*] The common and Portugal laurels, the arbutus, the laurustinus, and the alaternus, which require shelter at Paris, Strasburg, and Vienna, during the most severe weather, require none at Edinburgh. " A much greater number of exotic plants are injured by the winter's cold at Edinburgh, whilst they grow freely at Paris and Strasburg. These are plants which require a warm summer in order to ripen their shoots, and bring them into a woody state. In the warm summers of Paris and Strasburg, the plants accomplish this; but they cannot accomplish it in the lower temperature of Edinburgh, whence the roots remain tender, and are killed by the frost. The Palma Christi (*R*icinus commùnis) is an example of the effect of summer heat in ripening the wood; for in Britain this plant remains herbaceous, and in the open air lives only one season; but in Barbary it is perennial, and grows to be a woody tree of 12 ft. in height. On the other hand, the trees of the temperate zone, after they have perfected their shoots, require a colder season, during which their growth may be less active: it would seem that the heat which excited them to grow must not be continued during the whole year. It has been found that the European forest trees will not grow in Ceylon; they are killed by the constant action of the heat which prevails without intermission in that climate. Lime trees grow to a large size near Strasburg. Hornbeam is the wood most esteemed at Strasburg for fuel. This wood being compact, is also used for stocks of carpenters' planes. Oak timber is sent to Paris, from the country around Nanci, for the use of the house-carpenter. It is the wood of the *Q*uércus pedunculàta of Lamarck, which grows to a large tree, with a straight well-proportioned trunk. It differs from the *Q*uércus sessiliflòra, by its pedunculated acorns, and by its wood being of a less specific gravity. Its wood is less knotty, for which reason it is preferred for several kinds of work. It is said that the wood of the *Q*uércus pedunculàta is more subject to dry rot than that of *Q.* sessiliflòra. The term *merrain* means oak wood split into cask staves.

At Thann, the *C*ólchicum autumnàle abounds in the meadows, but the cows never touch it. [The case is the same in the meadows at Hawstead, and other villages near Bury St. Edmunds. — *J. D.*] The stalks of hemp, after being stripped of the outside fibre, are used in some part of Franche-Comté to make sulphur matches. "On some of the rocky calcareous hills at Besançon there grows a great deal of box; and at St. Claude, fifty miles to the south, boxwood is wrought into various articles. Box occurs in Franche-Comté, the Jura, Dauphiné, the Pyrenees, where Ramond remarks that it is found in the great valleys as far up as the height of about 6000 ft.; but he observes that it does not extend into the collateral valleys. It grows in the Levant, from which we import the wood under the name of Turkey box; and likewise in Italy and Spain. One of its most northerly stations is Boxhill, near Dorking, in Surrey, where it grows luxuriantly on a chalky soil. Dwarf box, such as is used for edgings, is indigenous on chalk rocks in the barren soil of Champagne."

The fruit of the *C*ratæ'gus torminàlis is sold in the market at Besançon. "Between Chartres and Nogent le Rotru, whin hedges appear. They are cut every three years, and used as fuel for bakers' ovens. The young shoots are bruised and given to cattle. Whin hedges are frequent also in Guernsey, where they are likewise cut for fuel. At Le Mans, a kind of kale, 6 ft. high, is cultivated in gardens."

The pomegranate ripens its fruit in the open air at Tours, where the *A*rúndo *D*ònax grows 12 ft. high. The botanic garden at Angers is "neatly laid out with walks and shrubberies, in the irregular or English style. *A'*triplex *H*álimus is employed to form hedges of 3 ft. high in the garden. The plant bears clipping, and retains its leaves during winter, so as to form a handsome low hedge. It is indigenous to some parts of the sea-coast of France. Photínia glàbra grows well as a standard here. Eriobótrya japónica was in flower in the open air, 20th December. The stone pine (*P*ìnus *P*ínea) produces cones at Nantes, and the cones containing the edible nuts are sold in the streets. This pine [fig. 37. p. 230. Vol. V.], which is frequent at Rome and in Tuscany, has a peculiar form, which is distinguished in pictures of Italian landscape, the branches spreading out like an umbrella at the upper part of the stem, and forming a flat top. I do not recollect to have met with this pine in places in the interior of France under the same parallel with Nantes (47° 15′), where the winters are colder than they are near the sea. At Paris, however, there are two that produce fruit on the mount in the Jardin des Plantes. In Britain the *Pìnus Pínea* seldom attains the size of a large tree, the temperature not being high enough."

"Between Nantes and Clisson occur many smallish fields, enclosed by hedges of hawthorn, bramble, and whin, with hedgerow trees of pollard oak. This is the part of La Vendée, called Le Bocage. Some patches of winter flax are now (11th January) green, and 2 in. high. This kind of flax is by some authors stated to be a variety differing from the flax which is sown in spring. Clisson, on the side of the river, nearly opposite to the old grey towers of the castle, is the villa, with extensive and picturesque grounds, of M. Mott the sculptor. The grounds were laid out by him, and are ornamented, in proper situations, by Italian buildings, temples, and antique statues. There are some large specimens of *Pìnus Pínea* in the neighbourhood of Bordeaux. It is long before the trees begin to produce cones. The cones, containing the nuts, are sold in the streets."

In Barbary and the Levant, an oil is made from the berries of the *Mèlia Azedaràch*, which is used in lamps. Rushes are planted along the edge of the Languedoc canal, to prevent the bank from being washed down. The egg plant is much cultivated at Narbonne as an esculent vegetable.

The kitchen-gardens at Montpelier, and in other parts of the south of Languedoc and Provence, are watered by means of rills (*rigoles* in French). The highest part of these rills is at the well, and from that they are conducted with a small declivity round all the beds of the garden. When any bed does not require water, the branch of the rill which supplies it is for the time stopped with earth. The water is raised from the well by machinery, moved by a horse of very moderate strength. In some places the machine is a chain pump, consisting of an endless chain, with earthen pots attached to it, the chain hanging upon a drum-wheel. In other places it is a wheel of so large a diameter, that whilst the upper part is higher than the surface of the ground, the lower part is immersed in the water, and wooden buckets are affixed to the rim of the wheel. The irrigation wheel of this construction is used in many of the countries that surround the Mediterranean; in Egypt it is called *naourah*; in Spain, *noria*. In China the irrigation wheel is used, and is made entirely of bamboo. This mode of watering gardens by rills requires less labour than the practice of carrying the water in watering-pots. It is suited to the warm and parched climate of Languedoc and Provence, but is not practised in the middle and north of France, where less watering is required.

" The cardoon (*C*ýnara Cardúnculus) is much cultivated in kitchen-gardens at Montpelier, and in Provence; the blanched footstalks of the leaves being boiled, and used at table. The dried florets of this plant have the property of coagulating milk, and are sold for that purpose at Montpelier. Seeds of annual flowers are collected from the wild plants in the country about Montpelier, and sent to Holland, where they are sold for the use of the flower-garden. Spanish broom (*S*pártium *j*únceum) is used for making cloth at Lodève, thirty miles north-west of Montpelier. It is sown in January, on dry banks, which have been slightly dug or ploughed. About the fourth year the stalks are long enough to be used for their filaments. The stalks are pulled in August, tied in bunches, which are placed in a ditch covered with straw, and watered during eight or nine days; the bunches are then beaten on a stone; they are opened out and dried, they are then combed, and the filament is now fit to be spun. Sheep are also fed with the young branches. Between Montpelier and Gauges the small branches of box are used as litter for cattle.

" In the Cevennes, chestnuts are an article of food, and the inhabitants have a process of kiln-drying them, so that they will keep good for two or three years. The process consists in exposing the chestnuts, on the floor of a kiln, to the smoke of a smothered wood fire. The heat is applied gently, so as to make the internal moisture transpire through the husk of the chestnut. The fire is kept gentle for two or three days, and then is gradually increased during nine or ten days. The chestnuts are then turned with a shovel, and the fire is continued till they are ready. This is known by taking out a few and threshing them; if they quit their inner skin, they are done. The chestnuts are then put in a bag, and threshed with sticks, to separate the external and internal husk. If the husks are left on, as is practised in the Limousin, the chestnuts become black, by imbibing from the husk the empyreumatic oil of the wood smoke, and do not keep so well.

" Stercùlia *p*latanifòlia (le parasol Chinois, the Tomchu of the Chinese) grows to a handsome tree of 8 in. diameter, in the botanic garden at Marseilles. The trunk is straight, with a fine smooth bark. There are some at Avignon likewise in the open air. At Lyons and at Paris it is usually kept in the green-house, although it is there considered capable of bearing the cold of ordinary winters, when sheltered from the north, and when covered in time of frost.

" There are but few places on the coast of Provence and Languedoc where orange trees grow all the year in the open air, and these are in situations well sheltered from the north. Hières is one of them: it is situated 50′ south of the parallel of Florence. At Rome, which is upwards of a degree farther south than Hières, the orange trees are covered in winter with sheds, having large apertures in front, which are closed at night by shutters made of reeds, and opened in the day to admit the sun; and at Aleppo, lat. 36° 12′, nearly under the same parallel with Gibraltar, Russell states that orange trees are removed into the house in winter, although they bear the open air in places nearer the sea in the same geographical latitude."

(*To be continued.*)

Art. III. *Verhandlungen des Vereins zur Beförderung des Gartenbaues in den Königlich Preussischen Staaten. Transactions of the Society for the Advancement of Gardening in the Royal Prussian States.* 4to, 2 Plates. Vol. V. Berlin, 1828.

1. *Extracts from the London Horticultural Society's Transactions,* Vol. vii. Part i.

The essence of all the articles is given in eleven pages.

2. *On the Propagation and Culture of Roses.* By M. Stichler of Dresden.

The following roses are said to flower more freely, and with larger better-filled double blossoms, when budded on brier stocks, than when on their own roots: *R*òsa centifòlia Sultàna, *R.* hollándica máxima, or La Duchesse de Grammont, and *R.* ùnica [unique?] cárnea, and *R.* pimpinellifòlia.

The following sorts should be worked on *R*òsa semperflòrens, on which they will bloom early, and abundantly: — *R.* muscòsa, and its several varieties; *R.* ùnica, *R.* centifòlia sulphùrea, and *R.* nìgra vèra.

3. *Notices of what took place at the Meeting of Jan.* 6. 1828.

A paper was read, written by M. Schoch, head-gardener at Wörlitz; describing that celebrated place, which was begun to be laid out in 1768, and in which the second example of the introduction of American trees was afforded to Germany; the first having been given, a few years before, in the Electorate of Hanover.

To prevent the caterpillar (*Phalæ̀na brumàta* mìnor *L.*) from ascending trees, M. Hallmann fastens a broad strip of paper round the stem; and on this lays a coating of linseed oil which has been thickened over the fire. Every three days this must be renewed. He had previously tried tar, but found it dry much too soon.

4. *On the Cold which certain Trees and Shrubs will bear in Germany.*

In this paper a judicious use has been made of an *Essay on the Geographical Distribution of Vegetables*, published in the *Mémoires du Muséum d'Histoire Naturelle*, t. xiv. 1827, p. 356. A table is subjoined, showing the cold which different trees will bear at Carlsberg, Tübingen, Hanover, Munich, and Berlin. Many plants which thrive at the two first places are killed at the last. The table embraces 709 species; and might well bear transferring to our columns, but it would fill half a Magazine; and, after all, it would be chiefly of use to the closet botanist, to assist him in his generalisations; and such can generally have recourse to the original.

5. *On the Liverpool Potato, and a Black Winter Radish.*

This Liverpool potato is said to be an early sort, without blossoms, extensively cultivated in the fields in the neighbourhood of Liverpool, for the supply of the market. It is proposed to try it in the sandy soils in the neighbourhood of Berlin. The black winter radish is recommended for its hardiness.

6. *On the Culture of the Blue Hydrángea.*

M. Fintelmann considers it clear that the blue colour of the flowers of the Hydrángea is owing to the presence of iron in the soil; sometimes the iron is found in peat earth, and sometimes in loam or sand. To make sure of blue flowers, he recommends the mixture with soil of a small quantity of iron filings, or of rust of iron in any form; say, about one twentieth part.

7. *Descriptive Notices of Two North American Needle-leaved Trees.*

By M. Schoch of Wörlitz.

These trees are the deciduous cypress, and the balm of Gilead fir: the former grows to the height of 30 ft., and the latter to 70 ft. in Germany. The resin called the balm of Gilead is found in lumps beneath the bark of the tree in

North America. The balm of Gilead is strongly recommended as an ornamental tree for parks, on account of the beauty of its cones, and of the fragrance with which the resin that exudes from them perfumes the surrounding atmosphere. The deciduous cypress M. Schoch recommends as very fit to mix with evergreen needle-leaved trees. He says it is found very hardy in Germany, and grows in any moist loamy soil. The wood is light, but firm; and the tree might probably be more frequently introduced into useful plantations in Britain. It is singular that the knobs which are produced by the roots of this tree, and which, even in Britain, rise a foot or more above the surface, never produce shoots.

8. *On Two North American broad-leaved Trees, viz. the Maple-leaved Liquidámbar and the Tulip Tree.* By M. Schoch.

The Liquidámbar styracíflua grows in Virginia, Canada, and Mexico, in low moist situations; and, according to several writers, produces an aromatic resin, which exudes through the bark at wounded places, like the gum of the cherry tree. The small branches are used for fumigation to purify rooms, and the leaves are sometimes employed as a substitute for tea. The tulip tree grows best in rich, moist, loamy soil; it is very hardy; and its wood, being hard, heavy, tough, and beautifully veined, is well adapted for cabinet-work.

(*To be continued.*)

ART. IV. *Literary Notices.*

NATURALIST's Library: conducted by Sir William Jardine, Bart. F.R.S.E. F.L.S. &c. Illustrated with numerous coloured plates, engraved by W. H. Lizars. In fcap. 8vo. The first volume of this work will appear early in the present year. The volumes will not exceed 6*s.*; each of which will contain from 30 to 40 coloured plates. The subjects for the volumes which are now in preparation are: — Vol. 1. Natural History of Monkeys. 2. The Feline Race, or Animals of the Cat Kind. 3. The Dog. 4. Sheep and Goats. 5. Deer. 6. Eagles and Hawks. 7. Humming-Birds. 8. Creepers. 9. Gallinaceous Birds. 10. Partridges and Grouse. 11. Cetacea, or Whales. 12. The Salmon. 13. Coleopterous Insects, or Beetles. 14. Bees, &c.

Philosophical Conversations; in which are familiarly explained the effects and causes of many daily occurrences in natural phenomena. By F. C. Bakewell. 12mo. In the press.

MISCELLANEOUS INTELLIGENCE.

Art. I. *Domestic Notices.*

ENGLAND.

Labourers' Gardens, Warwickshire. — On Saturday, the 3d of November, 1832, the prizes offered by Sir Eardley Wilmot to the labourers renting garden ground in Berkswell were awarded by him to the successful candidates. The prizes were, the whole year's rent, the half-year's rent, and the quarter-year's rent, for the three greatest quantities of wheat on one quarter of an acre, and the three greatest quantities of potatoes on the other quarter of an acre. The produce of the wheat in the three successful gardens was, 11½ bush., 10¼ bush., and 9¼ bush.; and of potatoes, 111 bush., 107½ bush., and 106½ bush. The average produce of all the forty gardens was, for each garden, as follows: —

	£	s.	d.	£	s.	d.
Wheat on one quarter acre, at 8s.				2	16	0
Potatoes on ditto (70 bushels, at 1s. 6d.)				5	5	0
				8	1	0
Deduct						
Rent	1	0	0			
Seed wheat	0	6	0			
Seed potatoes	0	9	0			
Extra-labour (perhaps)	1	0	0			
				2	15	0
Total profit				£5	6	0

Thus leaving a sum which, if subdivided into weeks, will give to each labourer 2s. per week per annum, obtained by his own industry and exertion. The pecuniary advantage of this plan to the payers of poor-rates, as well as to the labourer, is too apparent to need any comment. But nobody can sufficiently appreciate the moral improvement resulting from the possession of property, however small, and the having an occupation to resort to, in leisure or unemployed hours, rather than going to the beer-shop. — *E. E. W. Dec.* 7.

The Linnæan Society of London, on the 21st of June last, 1832, had the pleasure to receive from the East India Company a munificent present of dried specimens of Indian plants, collected between longitude 73° and 114° east, and latitude 32° north to the equator. During the last fifty years several distinguished naturalists in the service of the East India Company have accumulated a very rich herbarium, which contained, besides very numerous duplicates, as many as 1300 genera, and about 8500 species. The Company has, during the last few years, with great good sense and liberality, distributed between 7000 and 8000 specimens from among the duplicates, to individuals distinguished for their botanical attainments, and also to some institutions, in various parts of the world; and, in June last, as a crowning act of judicious munificence, presented the whole of the remaining herbarium, which comprises about 8000 species, and at least 80,000 specimens, to the Linnæan Society of London. The Society, fully sensible of the great importance of such an herbarium of Indian vegetation, have, by voluntary contributions among themselves, provided a series of capacious and handsome cabinets to receive them; and into these the specimens, after being first arranged, are now disposed. — *J. D.*

Mr. Thompson, late head-gardener to the Duke of Portland, at Welbeck, in Nottinghamshire, has retired from that situation, and commenced practising as a "general and landscape-gardener, improver of grounds, reclaimer of bogs, preparer of land for irrigation, &c. &c.," on his own account. Mr. Thompson's experience has been great and varied during the many years which he has superintended the multifarious improvements going on at Welbeck; and most sincerely do we wish him that success which he so well deserves. He was one of the earliest, and he has continued one of the steadiest, supporters of this Magazine. — *Cond.*

Fúchsia grácilis, nearly hardy, at Whitby, Yorkshire. — I have at this time a plant of Fúchsia grácilis in the open ground near 7 ft. high, and from four to five yards in circumference, and loaded with flowers. It is a very splendid plant, and has been planted out three years, and last winter was not cut down at all. My garden is in an open situation, three quarters of a mile from the sea, and at an elevation of about 120 ft. above its level. — *Henry Belcher, Whitby. Sept.* 18. 1832.

A Horticultural Society is about to be formed at Whitby. — We are attempting to form a Horticultural Society in this remote corner of the country; and as I understand that the subscriptions already promised exceed 20*l.* a-year, I fully expect we shall succeed. — *Id.*

A very fine Scarlet Cockscomb (Celòsia cristàta L.). — Sir, Allow me to register in this Magazine the dimensions of a cockscomb which I have this year (1832) grown. It was exhibited, on the 27th of July last, at the Northampton Horticultural show; and, on the 31st of July, at Buckingham Horticultural show, when the comb measured 32 in. over, 14 in. long, and 8 in. wide. Now (Oct. 12.) it measures 36½ in. over, 14½ in. long, and 8½ in. wide: the plant is 3 ft. 3 in. high, and the comb of a very handsome shape, and of a scarlet colour. I am, Sir, yours, &c. — *John Oxley, Gardener to the Right Hon. Lord Southampton, Whittlebury Lodge, Northamptonshire, Oct.* 12. 1832.

Burnard's Seedling Peach (a beautiful drawing of which, by Mr. E. D. Smith, the botanical artist, is before us) has the flesh of a deep purple from the skin to the stone. It was raised by J. P. Burnard, Esq., in his garden at Eden Grove, Holloway. — *Cond.*

Heaviest Gooseberries in 1832; 4 kinds in each colour. — *Red.* The Young Wonderful, 27 dwts. 13 grs. This kind made its first appearance in 1828, when a berry of it weighed 23 dwts. 13 grs. Companion, 26 dwts. 6 grs. Briton, 26 dwts. 10 grs. London, 24 dwts. 19 grs. — *Yellow.* Leader, 26 dwts. 9 grs. Gunner, 25 dwts. 17 grs. Teaser, 25 dwts. 6 grs. Two to one, 25 dwts. 3 grs. — *Green.* Bumper, a seedling in the first year of fruiting, raised by John Bratherton, of Wistaston: it weighed 30 dwts. 18 grs. Peacock, 25 dwts. 8 grs. Invincible, 23 dwts. 20 grs. Lord Crew, 22 dwts. 11 grs. — *White.* Ostrich, 24 dwts. 20 grs. Chorister, 24 dwts. 7 grs. Fleur de lis, 23 dwts. 9 grs. Eagle, 23 dwts. 6 grs. There are 23 new seedling kinds of gooseberry going out this year; 5 of them red, 5 yellow, 4 green, 9 white. — *M. Saul. Sulyard-street, Lancaster, Oct.* 27. 1832.

A Prodigious Pear has been grown near this town, on a tree belonging to Mr. Lamb, of Cockerham: it weighed 28½ oz. — *Id.*

Exhibition of Seeds, Roots, and Plants for Farming, at the late Show of the Smithfield Club. — Sir, The report of the agricultural seeds, roots, and plants exhibited at the Smithfield Club Show, as given in *Morning Chronicle* of Saturday, the *Herald* of Tuesday, and as copied into several of the evening papers, is so partial, and, in some instances, so contrary to the facts, that, for the information of your agricultural readers, we beg to hand you a correct account, at least, of what was exhibited by the firm of Cormack, Son, and Sinclair. Another year it may be worth the attention of the directors to take into consideration the propriety of giving a correct, however short, report of this department of the show, and not leaving it, as hitherto, to irresponsible reporters; for it is clear that the introduction of new and valuable varieties of green food for stock, and of keeping up true and genuine those already obtained, is a point next in importance to that of the stock itself. On the stand were exhibited the different kinds of seeds employed in British husbandry (exclusive of the common grain); among which were all the essential natural grasses and clovers for permanent pasture, for the alternate husbandry, and for fine or garden lawns. In the root department, the specimens of turnips were much admired for the great weight and fine shape, in comparison to the bulk, which, when overgrown, affects the nutritive properties of the root. The red round measured about 35 in. in circumference, weighed 18 lbs.; the white globe 31 in., 16 lbs.; yellow bullock 24 in., 12 lbs.; and the green round, green globe, Pomeranian, and stone in proportion. The purple and green top Swedes appear to have attained nearly the highest state of perfection these bulbs are capable of being brought to; the offal parts, as the neck and top, and tap-root, being now, by repeated careful selection in transplanting, reduced to as small a portion of the bulk of the root, as the necessary protection of it from wet and frost requires. The purple kohl-rabi, which is, in some instances, an excellent substitute for cabbages or Swedish turnips, has been much improved of late, in bulk, shape, and quality, as regards the thickness of the rind. The mangold wurzel weighed from 25 lbs. to 35 lbs. per root of a good shape and rich saccharine quality. The specimens of natural grasses and clovers comprehended all the species and varieties essential for permanent pasture on various soils; also those to be avoided, as couch, &c. The name was attached to each, of which there were upwards of 60 different species. This new and instructive part of the exhibition excited much attention in the visiters. We are, Sir, yours, &c. — *Cormacks and Sinclair.*

ART. II. *Metropolitan Nurseries.*

A List of the less common Kinds of Ornamental Trees and Shrubs cultivated by Messrs. Buchanan and Oldroyd, Camberwell. — Sir, I perceive you have inserted (Vol. VIII. p. 106—113.) selections of choice plants grown at various provincial nurseries, but which lists are rather deficient in many good ornamental trees and shrubs. As we have now many articles of this description, which are by no means common, I have taken the liberty of handing you a selected list from our general catalogue; and, should you publish it, it may be of service to those who are forming arboretums. I am, Sir, yours, &c. — *W. J. Buchanan. Sept.* 14. 1832.

Ornamental Trees.

*A'*cer barbàtum, coccíneum, dasycárpum, eriocárpum, flóridum, hýbridum, heterophýllum, macrocárpum, monspessulànum, montànum, nìgrum, nígricum [?], O'palus, obtùsum, *p*latanöìdes laciniàtum, saccharìnum, spicàtum, striàtum, and tatáricum.

*Æ'*sculus aculeàta, coccínea, díscolor, flàva, glàbra, hùmilis, ohioénsis, orientàlis, pállida, péndula, and rubicúnda.

*A'*lnus canadénsis, cordifòlia, glaúca, angulàta, incàna, macrocárpa, oblongàta, ovàta, *o*xyacanthæfòlia, pùmila, rùbra, and serrulàta.

Amelánchier Botryàpium, lùcida, ovàlis, spicàta, and vulgàris.

Aràlia spinòsa.

*A*mýgdalus amàra, macrocárpa, and sibírica.

*B*étula *c*arpinifòlia, excélsa, laciniàta, lénta, nìgra, *p*apyràcea, póntica, *p*opulifòlia, pubéscens, and *u*rticifòlia.

Broussonèt*ia* *p*apyrífera.

*C*árpinus americàna, *B*étulus var. incìsa, *B*. var. fòliis variegàtis, and orientàlis.

*C*astànea pùmila, vésca var. *a*spleniifòlia, vés. fòliis variegàtis, and glàbra.

*C*éltis austràlis and occidentàlis.

*C*ércis canadénsis and *S*iliquástrum.

*C*ratæ`gus altàica, *a*piifòlia, Arònia, *Azaròlus*, caroliniàna, carpáthica, Cels*iàna*, coccínea, cordàta, ellíptica, edùlis, flórida, físsa, glandulòsa, heterophýlla, incìsa, laciniàta, lineàris, mexicàna, monógyna, odoratíssima, ovalifòlia, *o*xyacanthöìdes, *O*xyacántha, *O*. punícea, *O*. stricta, *O*. præ`cox, péndula, *p*runifòlia, punctàta, sibírica, spathulàta, spinosíssima, stipulàcea, tanacetifòlia, víridis, and virgínica.

*C*upréssus dísticha v. pàtens.

*C*ydònia moschàta and sinénsis.

*C*ýtisus *L*abúrnum, *L*. incìsum, and *L*. péndulum.

*D*iospỳros virginiàna.

Eriobótrya japónica.

*F*àgus ferrugínea, sylvática *a*spleniifòlia, s. cristàta, s. cùprea, s. laciniàta, s. péndula, s. purpùrea, and s. fòliis variegàtis.

*F*ráxinus acuminàta, amaríssima, atrovìrens, caroliniàna, cinèrea, ellíptica, excélsior fòliis variegàtis, e. nàna, e. verrucòsa, floribúnda, glaúca, jaspídea, *l*entiscifòlia, monstròsa, ovàta, oxycárpa, oxyphýlla, pállida, pannòsa, platycárpa, pubéscens, Richárd*i*, *s*alicifòlia, *s*ambucifòlia, simplicifòlia, vìrens, and víridis.

Gledítsch*ia* aquática, brachycárpa, cáspica, hórrida, inérmis, micracánthos, monospérma, orientàlis, præ`cox, purpùrea, sinénsis, and triacánthos.

Gymnócladus canadénsis.

Magnòl*ia* auriculàta, obtusifòlia, macrophýlla, and Thomson*iàna*.

*M*òrus pennsylvánica, sinénsis, and tatárica.

Negúndo *f*raxinifòlia var. *v*iolàcea.

O′strya virgínica.

*P*ìnus *A*`bies álba, *A*. nìgra, *Cémbra*, Fràser*i*, ìnops, Larício, *Mùghus*, Banks*iàna*, marítima, ponderòsa, resinòsa, halepénsis, and rígida.

*P*látanus cuneàta and orientàlis incìsa.

*P*ópulus *a*cerifòlia, angulàta, canéscens, grísea, heterophýlla, hýbrida, lævigàta, macrophýlla, monilífera, péndula, supìna, trépida, viminàlis, and víridis.

*P*rùnus cándicans, cerasífera, *C*hamæcérasus, *Chicàsa*, hyemàlis, pennsylvánica, serótina, virgínica, sinénsis, *C*érasus *a*spleniifòlia, and *C*. fòliis variegàtis.

*P*ŷrus *a*mygdalæfórmis, baccàta, Chamæméspilus, communis fòliis-variegàtis, lineàris, grandifòlia, montàna, nivàlis, Bollwyller*iàna*, præ`cox, pùbens, *s*alicifòlia, sinàica. variòla, *M*àlus fòliis variegàtis, *M*. coronària, *M*. hyemàlis, *M*. sinénsis :

*Q*uércus *Æ*′gilops, álba, ambígua, aquática, Banistèr*ia*, bícolor, bullàta, Catesbæ`*i*, díscolor, *C*érris fòliis variegàtis, *C*. dentàta, coccínea, coccífera, *Æ*′sculus, falcàta, fastigiàta, gramúntia, heterophýlla, hýbrida, laciniàta, *l*aurifòlia, Leucombe*àna*, lyràta, macrocárpa, marítima, nàna, nìgra, obtusíloba, palústris, pedunculàta, p. fòliis variegàtis, p. péndula, *P*héllos, *P*rìnus, rùbra, serícea, *s*alicifòlia, *S*ùber, tinctòria, *Taúzin*, tríloba, Túrner*i*, and vìrens.

Robín*ia* críspa and procèra.

Sophòra japónica and j. péndula.

*S*órbus angustifòlia, acuminàta, aúrea, auriculàta, crética, dentàta, d. mìnor, doméstica, hýbrida, latifòlia, lanuginòsa, longifòlia, nívea, pinnàta, pinnatífida, torminàlis, and vestìta.

*T*ília americàna, aúrea, laciniàta, parvifòlia, pubéscens, and rùbra.

Virgíl*ia* lùtea.

U′lmus americàna, *b*etulifòlia, cinèrea, críspa, nodòsa, rùbra, *p*opulifòlia, strícta áspera, viminàlis, and péndula.

Shrubs.

Àcàcia *Julibríssin.*
A`cer créticum.
Ammýrsine *b*uxifòlia.
Ampelópsis cordàta.
Amórpha Lewísi*i*, cærùlea, and nàna.
Andrómed*a* arbòrea, coriàcea, speciòsa, and *l*igústrina.
*A*mýgdalus nàna, n. álba, pùmila, and orientàlis.
Anòna tríloba.
A'rbutus *A*ndráchne, *A*. hýbrida, críspa, and procèra.
Aristotèl*ia* *Mácqui* fòliis variegàtis.
A'triplex *p*ortulacöìdes.
Bérberis aristàta, americàna, canadénsis, crética, däùrica, fasciculàris, glumàcea, ìlicifòlia, provinciàlis, vulgàris, vul. aspérrima, vul. álba, and vul. lùtea.
*B*étula nàna.
Bòry*a* *l*igústrina.
*B*umèlia *l*yciöìdes.
*B*upleùrum fruticòsum.
Calóphaca wolgárica.
Calycánthus bullàtus, glaúcus, grácilis, fértilis, and lævigàtus.
Caragàna Altagàna, arenària, frutéscens, grandiflòra, Halodéndron, jubàta, macrophýlla, pygmæ`a, sibírica inérmis, spinòsa, and *t*ragacánthöìdes.
Chimonánthus frágrans, grandiflòrus, and lùteus.
*C*lématis calycìna, cirrhòsa, críspa, orientàlis, revolùta, and Viórna.
Cotoneáster, affìnis, a. obtùsa, acuminàta, frígida, laxiflòra, and rotundifòlia.
*C*lèthra acuminàta and paniculàta.
*C*órnus alternifòlia, álba, circinàta, serícea, and strícta.
*C*ýtisus argénteus, austrìacus, biflòrus, elongàtus, decúmbens, falcàtus, supìnus, triflòrus, and leucánthus.
*C*aprifòlium pubéscens, longiflòrum, and coccíneum nòvum.
*D*áphne collìna fóliis variegàtis, póntica rùbra, and *Mezèreum* serótinum.
Diervíll*a* hùmilis.
Dírca palústris.
*Æ*læágnus argéntea.
Epigæ`a rèpens.
Escallòn*ia* álba, montevidénsis, and rùbra.
*Æ*uónymus americànus, angustifòlius, atropurpùreus, europæ`us nànus, Hamilton*iànus*, latifòlius, and verrucòsus.
Fontanès*ia* *p*hillyræöìdes.
Fothergíll*a* *a*lnifòlia.
Gaulthèr*ia* *Shállon.*
*G*enísta decúmbens, germánica, hispánica, ovàta, pilòsa, radiàta, and tríquetra.
Gordòn*ia* pubéscens.
Hydrángea radiàta and *q*uercifòlia.
I`lex baleárica, ciliàta, *Cassìne*, heterophýlla, opàca, *Peràdo*, and *p*rinöìdes.
*J*uníperus alpìna, däùrica, excélsa, lýcia, phœnícea, prostràta, and recúrva.
Kálm*ia* lùcida, *s*alicifòlia, and latifòlia.
Lavándula spìcâ álbâ.
Linnæ`*a* boreàlis.
Menziès*ia* *p*oliifòlia var. atropurpùrea, *p*. cærùlea, and *p*. globulàris.
*P*ìnus palústris.
*P*hiladélphus grácilis and grandiflòrus.
Photínia serrulàta.
Potentílla floribúnda.
*P*rìnos ambíguus, canadénsis, glàber, lanceolàtus, lævigàtus, and verticillàtus.
*P*rùnus caroliniàna, depréssa, prostràta, and spinòsa flòre plèno.
*P*tèlea trifoliàta.
*R*hámnus *a*lnifòlius, cathárticus, Frángula, hýbridus, latifòlius, pùmilus, saxátilis, *A*latérnus, *A*. Clùs*ii*, and *A*. fòliis variegàtis.
*R*hododéndron däùricum, d. atrovìrens, caucásicum, frágrans, hirsùtum fòliis variegàtis, *m*yrtifòlium, contórtum, magnol*iæfòlium*, pónticum álbum, máximum *r*òseum, marginàtum, pállidum, *s*alicifòlium, pállidum, and several fine hybrids.
*R*osmarìnus officinàlis fòl. varieg.
*R*hús aromática, copallìna, glàbra, Toxicodéndron, and vérnix.
Rìbes sanguíneum andviscosíssimum.
Robín*ia* amorphæfòlia, grandiflòra, microphýlla, and tortuòsa.
Sálsola fruticòsa.
*S*pártium *j*únceum flòre plèno, multiflòrum lùteum, m. incarnàtum, *s*copàrium álbum, *s*co. flòre plèno, and variegàtum.

*S*piræ'a álpina, *a*riæfòlia, *b*etulifòlia, *c*hamædrifòlia, corymbòsa, flexuòsa, incarnàta, sibírica, *t*halictröìdes, tobólskia, trilobàta, and *u*lmifòlia.
Staphylèa trifoliàta.
Stuárt*ia* Malachodéndron and marilándica.
*S*týrax lævigatum and officinàle.
Symphòria glomeràta fòliis variegàtis.
Syringa pérsica álba, laciniàta, rothomagénsis, cærùlea, and *v*iolàcea.
*T*áxus baccàta fòliis variegàtis and hibérnica.
Thermópsis *l*aburnifòlia.
*T*hùja plicàta.
U'lex europæ'a and strícta.
*V*accínium amœ'num, corymbòsum, fuscàtum, nítidum, pállidum, and venústum.
*V*ibúrnum *a*cerifòlium, *a*lnifòlium, lantanöìdes, Lentàgo, nùdum, *p*runifòlium, *p*yrifòlium, and pubéscens.
Xylósteum montànum and sibíricum.
Xanthóxylon *f*raxíneum.
Xánthorhìza *a*piifòlia.
*S*mìlax rotundifòlia, áspera, and cadùca.

ART. III. *Provincial Nurseries.*

IPSWICH Nursery (Messrs. R. Jeffries and Son) is situated within two or three hundred yards of the principal west entrance of the town from which it derives its name. It was founded by Mr. R. Jeffries, one of the present occupiers, about the year 1810, since which time additions have been made, and which (being in detached parts) are appropriated to the rearing of a general collection of fruit and forest trees, with evergreen and flowering shrubs; while the original, or homestead, is a receptacle for the rarer flowering plants, abounding with a good collection of roses, American plants, and some of the most showy herbaceous plants, some florists' flowers, and a very splendid collection of georginas, many of which were raised from seed on the premises; and among which I notice the following seedlings of the last two years, as being particularly worthy of the attention of the cultivator; namely,

Name.	Colour.	Height.
Jeffries's Alfred	shaded maroon	ft. 4
burning coal	fiery crimson	3
unique	early blood crimson	3 to 4 ft.
Isabella	fine claret	3 to 4
insígnis	fine shaded crimson	3 to 4
incurved	deep rose, white streaks	3 to 4
Don Pedro	very thick quilled ruby	4 to 5
conspícua	fine puce	5
Lady Rowley	rosy crimson	5
transcéndens	fine shaded scarlet	5
tríste	fine dark	5
viceroy	fine bright crimson	4 to 5

There is a good green-house, with a select and excellent collection of green-house plants; several pits and frames for the defence of half-hardy plants, and other purposes. Upon the whole, this is an interesting little place; but to point out every species of plant would be superfluous in itself, and uninteresting to the generality of readers; I therefore content myself, for the present, with giving the names of a few, which, on my visits there, struck me as being worthy of particular attention, either for their rarity, their beauty, or their fragrance.

Green-house Plants.

Alstrœmèr*ia* psittacìna, pulchélla, and trícolor.
Amarýll*is* Jóhnson*i*.
Andrómed*a* *b*uxifòlia.
Azàlea índica, phœnícea, hýbrida, and *l*edifòlia.

Borò*nia* denticulàta and serrulàta.
Cèreus speciosíssimus, Jenkinsòn*i*, and Ackermánn*i*.
Calceolària bícolor, Yoúng*ii*, Y. pallídior, Hope*àna*, polyántha, epso*màna*, punctàta, Atkinsòn*ii* and Gellani*àna*.
Chiròn*ia* trinérvia.
*C*ýclamen repándum and pérsicum odoràtum.
Escallòn*ia* rùbra.
Fúchs*ia* globòsa.
Gesnèr*ia* bulbòsa.
*G*ladìolus natalénsis.
Gloxín*ia* cauléscens and cándida.
Hòve*a* Célsi*i* and latifòlia.
Ipomópsis élegans.
*O'*xalis floribúnda, Dépp*ei*, and Bówi*i*.
Pitcaírn*ia* stamínea.
Petùnia integrifòlia.
Técoma capénsis.

The following are the more interesting of the herbaceous plants grown in the Ipswich Nursery: —

*Á*lýssum saxátile variegàtum.
*A*nemòne alpìna.
Aquilègia glandulòsa.
*A'*rabis lùcida variegàta.
*A*sclèpia*s* tuberòsa.
*C*atanánche bícolor.
Centrocárpha speciòsa and grandiflòra.
Calceolària *p*lantaginifòlia and arachnöídea.
Cypripèdium spectábile.
Diánthus Físcher*i* and pùmilus [barbàtus 2 latifòlius.]
*D*odecàtheon Mèad*ia* albiflòra, M. gigantèa, and M. élegans.
Dracocéphalum argunènse.
Erythrolæ`na conspícua.
Erpètion renifórmis.
Francò*a* appendiculàta.
Galánthus plicàtus.
Gaillárd*ia* bícolor, aristàta, and Richardsòn*ii*.
*H*emerocállis fúlva variegàta.
*L*áthyrus grandiflòrus.
*L*eucòjum vérnum.
*L*ílium japónicum, longiflòrum, and cóncolor.
Lobèl*ia* speciòsa.
Linària alpìna.
Lubín*ia* atropurpùrea.
*L*ýchnis chalcedónica álba plèna.
*O*nósma taúricum.
*M*álva miniàta and purpuràta.
*M*imulus rivulàris var. màjor.
Pentstèmon ovàtus, Richardsòn*i*, procèrus, glandulòsus, and speciòsus.
*P*hlóx, many species and varieties of.
Potentílla Russell*iàna*, Briénn*ia*, Mackay*àna*, and Hopwood*iàna*.
*P*olemònium pulchéllum and Richardsòn*i*.
Pulmonària däùrica.
*S*ìda *m*alvæflòra.
Silène marítima flòre plèno and règia.
Soldanélla montàna.
Tradescánt*ia* nívea and congésta.

Choice hardy Shrubs.

Bèrberis fasciculàris.
Bignòn*ia* radìcans màjor supérba.
Cotoneàster microphýlla, and affìnis.
Chimonánthus fràgrans.
*C*aprifòlium flexuòsum, japónicum, and pubéscens.
Calámpelis scàbra.
Gaulthèr*ia* *Shállon*.
Magnòl*ia* cónspícua, Thomson*iàna*, and Soulang*iàna*.
Piptánthus nepalénsis.
*R*hododéndron däùricum atrovìrens, fràgrans, Smíth*ii*, and Russell*iàna*.
Ribes aúreum præ`cox, sanguíneum, and speciòsum.
Wistàr*ia* frutéscens and Consequ*àna*.
*S*piræ`a *a*riæfòlia and béllà.

Messrs. Jeffries and Son are growers of seeds, and deal in them. I am, Sir, yours, &c. — *John Smith*, *Gardener to Dykes Alexander*, *Esq. St. Matthew's*, *Ipswich*, *Dec.* 27. 1832.

Art. IV. *Floricultural and Botanical Notices of new Plants, and of old Plants of Interest, supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; each monthly Number containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; each monthly Number containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by John Lindley, F.R.S., Professor of Botany in the London University.

Sweet's British Flower-Garden; each monthly Number containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Librarian to the Linnæan Society.

Loddiges's Botanical Cabinet; each monthly Number containing ten plates; 5*s.* coloured, 2*s.* 6*d.* partly coloured. Edited by Messrs. Loddiges.

Maund's Botanic Garden; each monthly Number containing one plate, bearing pictures of four plants; 1*s.* 6*d.* coloured and large paper, 1*s.* small paper. Edited by Benjamin Maund, F.L.S.

Dicotyledonous Polypetalous Plants.

XLVI. *Cácteæ.*

1472. CE'REUS.
setòsus *B. C.* bristled ♄ ⊔ or ½ au Pk Brasil 1829. C lt.l Bot. cab. 1887

"It has a trailing stem, rooting as it goes, for two or three feet in length. Its flowers are readily produced, and usually about the month of August." (*Bot. Cab.*, Jan. 1833.)

Mr. Dennis has raised a number of seedling cereuses; and, as many of them are from hybridised seeds, some interesting varieties are expected. Mr. Dennis possesses an interesting-looking kind, but not of his own raising, named Cèreus oxypétalus.

LI. Loàseæ.

1478. MENTZE'L*IA.*
12637*a* hìspida *Willd.* hispid £ △] or 1½ ap Y Peru 1831. S s.l Bot. mag. 3205

This is an interesting plant; but its flowers, of a rich yellow colour, and exceeding in outline the size of a shilling, seem not numerously produced. Dr. Hooker conceives that this may be distinct from the M. áspera of Linnæus. The powdered roots of some species of this genus are violently purgative, and in consequence used medicinally. (*Bot. Mag.*, Dec.)

LVI. M*yrtàceæ.*

2179. MELALEU'CA.
19603*a* ? Fràseri Hook Fraser's ▲ ⊔ or 1½ ... Pa.Ro N.S.W. 1829. C p.l Bot. mag. 3210

"A lowly, much-branched shrub, with many short opposite or subverticillate branches, bearing generally, towards their extremities, and crowdedly, linear awl-shaped leaves. Flowers collected into a spike, of a broadly oval or subglobose outline, at the extremity of the branches, only terminated by two or three shoots of the current year's growth." Mr. Fraser, late colonial botanist at Sydney, sent it to the Glasgow garden, named M. genistifòlia, but it is very different from the species so named by Smith. M. Fràseri is a pretty species. (*Bot. Mag.*, Jan. 1833.)

LXXII. *Aristolòchiæ.*

374. *A*RISTOLO'CHIA.
22849*a* cymbìfera *Mart.* boat-*flwd.* ℒ ▭ or 20 jl.au Y.P St.Paul 1828. C p.l Bot. reg. 1548

A most remarkable species, in the style of *A.* labiòsa. The leaves, by the one figured, emulate in size those of the hardy *A.* sìpho; and the flower, in its size, and the length of its lip, exceeds that of *A.* labiòsa. Its introduction to England was by a seed-vessel, sent from South America by Mr. Parish to Mrs. Hawkins, of Bignor Park, about five years ago.

That lady gave the seed-vessel to the Rev. John Austen, of Pulborough Rectory, in Sussex, who raised plants from it; and from a plant in his stove, growing in rich soil under the pavement at the back of the stove, the specimen figured was supplied. In this situation it grows so vigorously, that armfulls of it require to be annually destroyed, to prevent its overrunning the house. It strikes very readily from cuttings. Huge as are the flowers of this species, they yield in size both to *A.* cordiflòra and gigantèa, in which the blossoms are from 15 to 16 inches across, being large enough to form hats for the Indian children, who amuse themselves with them. (*Bot. Reg.*, Dec.)

LXXIII. R*osàceæ*.

1528. POTENTI'LLA.
atrosanguínea-pedàta *Maund* **(hybrid) £ △ or 1 jn.s Dp.O Eng.hyb. 1831 D co Bot. gard. 385**

" The novel colour of this new hybrid flower renders it very desirable. The plant is slender, like P. pedàta. We," says Mr. Maund, " raised it from seed of the P. atrosanguínea, fertilised with pollen of P. pedàta; and we believe that a more perfect mixture of two distinct and dissimilar species is not known. The dark red of the one, and full yellow of the other, are well mingled, and produce a rich deep orange. The foliage, also, of it is intermediate between that of its two parents." Mr. Maund, on the wrapper of his *Botanic Garden* for January, 1833, has the following additional remark on this plant: — " We have presented the stock of our new Potentílla to the Messrs. Pope, nurserymen, Handsworth, near Birmingham. This appeared to be the only practicable method by which we could accommodate all who may wish to possess it."

LXXVII. *Leguminòsæ.* § *Genísteæ.*

1952. CROTALA'RIA.
17387*a* ? striàta *Hook.* **striated-*fld.* ✱ □ or 3 ... Y.R Mauritius ? 1831. S l.p Bot. mag. 3200**

The figure is " from a drawing made ten years ago from a plant in the collection of the late Mr. Walker, of Arno's Grove, but unaccompanied with any remark. The flowers are small, numerous, and yellow streaked with red. (*Bot. Mag.*, Dec. 1832.)

Leguminòsæ. § *Mimòseæ.*

2837. *A*CA'CIA. § 4.
24743*a* intermèdia *Cun.* **intermediate ✱ ⊔ or 8 ... Y N.Holl. 1816? C s.l.p. Bot. mag. 3203**

Figured from the Kew collection, off a shrub of strong growth, 8 ft. high, and much branched; the branches twiggy, and bearing copious foliage, the leaves or phyllodia nearly 3 in. long, and linear-lanceolate. " Flowers crowded, fragrant, arranged in rather long, slender, cylindrical, spreading, sessile, deep yellow spikes, shorter than the leaves." This kind has long existed at Kew; but no botanist, before Mr. Cunningham, has described its characteristics: its nearest affinity is to *A.* floribúnda *Willd.* and *A.* mucronàta *Willd.* (*Bot. Mag.*, Dec.) The time of its flowering is not stated.

XCVI. R*hámneæ*. Pomadérris betùlina *Cun.*, already given in our *Additional Supplement*, is figured in the *Botanical Magazine* for January, t. 3212. It is an interesting-looking species, described as " a slender, and much branching, shrub," with numerous small leaves, shaped like those of birch, and " green and nearly glabrous above, but clothed beneath with a dense rusty down. Flowers small, collected into numerous dense bracteated heads, which are sometimes on short solitary peduncles, from the axils of the leaves, or they form a sort of panicle at the extremity of the numerous branches." Figured from the Kew collection, into which it was introduced from New South Wales, in 1823, by Allan Cunningham, Esq.

CXXIII. O*xalídeæ*.

1414. *O*XALIS. § 2.
Cumíngi Herb. Cuming's £ △| ? pr ½ au.s Go Chile 1831. S s.l Bot. reg. 1545

A pleasing species, with small pubescent leaves, and rather numerous golden flowers, the size of a sixpenny piece. The Hon. and Rev. W. Herbert, who raised it from seeds, introduced to England by Mr. Cuming, thus speaks of it: — "The appearance of the little pot, containing four and five seedlings, which produced a constant succession of blossoms, expanding without sunshine, and on the wettest days, was very pleasing." (*Bot. Reg.*, Dec.) Mr. Herbert considers the plant likely to prove a perfectly hardy annual, but in a frame it will possibly be perennial.

CXXIV. *Tropæòleæ.* Tropæ`olum pentaphyllum is figured in the *Bot. Mag.* for Oct., t. 3190., and in the *Bot. Reg.* for Dec., t. 1547. It is a tuberous root-stocked green-house or pit perennial, with wreathlike stems, gracefully climbing by means of the long tendrilly footstalks of its pretty, somewhat starlike, leaves. The peduncles of the numerous, and not unhandsome, flowers, are gracefully long and drooping. The plant is dormant during the winter, and should then have plenty of air. Mr. Neill, Edinburgh, and Mr. Knight, Chelsea, possess the plant.

CXL. *Caryophýlleæ.* § *Silèneæ.*

1386. DIA'NTHUS.
11469a *Libanòtis Lab.* of Lebanon £ △ or 4 au W.spot Mt.Leb. 1830. C 1.p Bot. reg. 1548

"We incline to think this most lovely species the very finest of the genus. Mr. Lambert is its fortunate possessor. We presume, from its native country, the highest points of Mount Lebanon, that it will require a warm and dry situation; it will then thrive in the open air." The flowers are borne in pairs on the tips of the peduncles, their tube is long, and the five white petals are spotted in their middle part, and end in a cut fringe, somewhat in the manner of D. supérbus. (*Bot. Reg.*, Dec.)

Diánthus aggregàtus is figured, from Mrs. Marryat's garden, in Sweet's *Flower-Garden* for Nov., t. 166. "It is closely related to D. barbàtus, of which species it may be, perhaps, only a variety; but it is a highly ornamental plant, and, therefore, deserving of a place in every flower-garden. The plant is perennial, delighting in a light soil, and is increased by cuttings, or by seeds, which it perfects in abundance."

DICOTYLEDONOUS MONOPETALOUS PLANTS.

CLXXV. *Lobeliàceæ.*

609. LOBE'LIA.
5102a mucronàta *Cav.* mucronate-*lvd* ♃ ⌊△⌋ or 3 au Bt.C Chile 1831. D l.p Bot. mag. 3207

This beautiful species is nearly related to the splendid L. *Tùpa*, and is expected to prove, like that, comparatively hardy. "It is a much smaller plant than that, in all its parts, bearing a much shorter and more lax raceme of [12 to 14] flowers, but which are equally brilliant in point of colour." Introduced to the Glasgow botanic garden by Alexander Cruickshanks, Esq. (*Bot. Mag.*, Jan. 1833.)

Lobèl*ia* speciòsa is figured in Sweet's *British Flower-Garden* for Jan. 1833, t. 174., and stated to be an Irish, not a Scottish, hybrid, as I had before registered it. This plant finely grown in pots; and several plants of it, placed among potted plants of the scarlet-flowered kinds, L. fúlgens, spléndens, and cardinàlis, give to the group a lively contrastedness of colour. I saw a group of this kind in Messrs. Dennis and Co.'s nursery, on the 20th of August last. At the same nursery I saw, on Sept. 30., two very interesting species of Lobèl*ia* blooming, which had been imported, in 1832, from North America, by Mr. Alexander Gordon: whether they have ever been described or not, I do not know: one is called L. glandulòsa, and has glands on the edges of its leaves, at the shallow serratures. Both species have blue flowers. — *J. D.*

CLXXXVI. *Compósitæ.*

335. SENE'CIO.
Tussilàginis *Less.* Coltsfoot-*lvd.* ɥ ⌊⌋ or 1½ my P Teneriffe 1829. C p.l Bot. reg. 1550
Cineràría Tussilàginis *Herit.* and *Willd.*

" It is a handsome green-house plant, flowering very abundantly, and is readily increased by cuttings." (*Bot. Reg.*, Jan. 1833.)

CXC. *Cinchon*àceæ *Lindl.*

389. MANE'TTI*A*.
cordifòlia *Mart.* heart-lvd. ♃ □ or 10? au.d S Buen. Ayr. 1831. S p.l Bot. mag. 3202

A graceful evergreen suffruticose twiner, with stalked pendulous scarlet tubular corollas above an inch in length: the height or extent to which the plant attains is not stated. The plant seems well furnished with foliage. The leaves are shining and opposite; in figure cordate, acuminate, and the lowest and largest 4 in. long, and nearly 2½ in. broad, gradually diminishing in size to the uppermost, which are 4 lines long and 2 lines broad. The plant is figured from the stove of Mr. Neill, Canonmills, where it first showed flower in August last. Another and stronger specimen is just now (10th October) opening its first blossoms; and, being covered with a profusion of buds in every stage, promises to be exceedingly ornamental during many weeks. It was raised from seed sent home by Mr. Tweedie. (*Bot. Mag.*, Dec.)

CCXI. S*crophularíneæ*.

1783. *M*I'MULUS.
15900*a* variegàtus *Dou.* variegated-*flwd* ♃ △ or 1 su W.Ro Chile 1831. S lt.l Bot. cab. 1872

Lately introduced from Chile into France: we received it by the kindness of our friend, M. Mirbel, of the Jardin du Roi, at Paris. It flowers in long succession during the summer, and thrives best if the pot is placed in a pan of water: it appears to bear seeds freely, and, being probably not long-lived, it is requisite to renew it frequently. (*Bot. Cab.*, Dec.) The limb of the corolla is large; and of its five divisions, four are white, the lowest rosy, with some yellow towards the throat: it seems in habit closely related to M. guttàtus and lùteus.

In the Horticultural Society's Garden, on Sept. 8. 1832, I was shown a very pleasing herbaceous species of *M*ímulus, the *M.* ròseus of Douglas: it has rosy largish corollas, and foliage not very unlike that of *M.* moschàtus.

CCXIII. S*olàneæ*.

582. SOLA'NDR*A*.
4611*a* guttàta *D. Don* spotted-*flwd* ▲ □ or 12 jn.jl Pa.Y Mexico 1830. C r.m Bot. reg. 1551

A splendid species, "introduced from Mexico, by Mr. Tate, of the Sloane-street Nursery, from whom Mr. Lambert obtained the plant, which blossomed in the stove, at Boyton, in the early part of last summer. It appears to be fond of warmth and moisture, grows luxuriantly, is readily increased by cuttings, and promises to produce its blossoms more freely than the other species." (D. Don, in *Bot. Reg.*, Jan. 1833.)

Nierembérg*ia* linariæfòlia of our *Additional Supplement*, is published in Sweet's *British Flower-Garden* for December, by the name of N. grácilis, to which that in the *Supplement* must be altered. Mr. D. Don remarks the very close affinity of this genus to the genus *Petùnia*, and also the close affinity of the genus *Petùnia* to the genus Salpiglóssis. This seems practically proved by the Salpiglóssis integrifòlia of the *Botanical Magazine*, 3113., being as palpably a *Petùnia* as it can stare. It is a most ornamental species, with largish rosy crimson blossoms; and, in the Horticultural Society's Garden, I learned, on Sept. 3. 1832, that a blossom or blossoms of it had been there just previously impregnated with the pollen of *Petùnia* nyctaginiflòra. Mr. D. Don proposes to call the Salpiglóssis integrifòlia of Hooker *Petùnia* phœnícea.

CCXIV. A*canthàceæ*.

1727. RUE'LL*IA*.
oblongifòlia *B. C.* oblong-lvd. ▲ □ or 3? s Ro Brazil 1830. C lt.l Bot. cab. 1889

" One of the last plants we received from our late friend, Robert

Barclay, Esq. It is a stove plant, of considerable beauty." (Loddiges's *Bot. Cab.*, Jan. 1833.)

CCXXI *Labiàtæ.* Sàlvia angustifòlia *Cav.*, a beautiful species, native of New Spain and Mexico, is figured in the *Botanical Register* for January, t. 1554., and there thus spoken of: — "It proves a very pretty perennial, growing about 2 ft. high, and producing its deep pure blue flowers in July, August, and September. In the summer it thrives in the open air, forming a pleasing contrast with the red Brazilian and Mexican species commonly cultivated; but in the winter it is necessary to preserve it from frost in a green-house or well-protected pit. It is easily propagated by cuttings. In the size of its blossoms, and in its foliage, it much resembles S. Gràhami."

MONOCOTYLEDONOUS PLANTS.

CCXXXVIII. *Amaryllìdeæ.* Mr. Haworth, in a somewhat recent number of Taylor's *Philosophical Magazine*, has published some useful additions and amendments to his *Monograph on Narcissinean Plants;* and this mention of the paper will enable the students of this group to refer to it, and use the information it imparts. In a postscript at the close of that communication, Mr. Haworth remarks that Zephyránthes grandiflòra (*Bot. Reg.*, 902.) is the same plant as Habránthus robústus of Herbert, in Sweet's *British Flower-Garden*, Second Series.

CCXXXIX. I*rídeæ.*

142. I'RIS.
1267*a* crassifòlia *B. C.* thick-lvd £ ⌊△⌋ or ¼ jl.au Pa.B C.G.H. 1830? D s.l Bot. cab. 1861

"It has been lately introduced. It is nearly allied to the *I.* moræöìdes: it flowers, and appears to increase, slowly." (*Bot. Cab.*, Nov.)

128. GLADI'OLUS.
pudibúndus *Swt.* blush-*flwd* ɤ ⌊△⌋ or 3 ... Bh Eng.hyb. ... O Sw.fl.gar.2.s.176

"This is of hybrid offspring, we believe, between *G.* cardinàlis and blàndus, and was raised by the Hon. and Rev. William Herbert, to whom we are obliged for the specimen figured. It is an extremely showy plant, and therefore cannot fail to become a universal favourite with florists. It will doubtless require the same treatment as *G.* cardinàlis, and, like it, be readily increased by offsets. (*British Flower-Garden*, Jan.)

Gladìolus natalénsis (psittacìnus of some), we are informed from the country, multiplies itself by offsets amazingly fast.

CCXL. *Orchídeæ* § Vándeæ.

2537. MAXILLA'RIA.
décolor *Lindl.* pale *yellow-flwd* £ [△] or 1 ja Pa.Y Jamaica 1830. D p.r.w Bot. reg. 1549
(For an enumeration of 17 other species, living in British collections, see *Bot. Reg.*, 1549.)

A new, distinct, and tender stove species, figured from the nursery of its introducer, Mr. Lee, Hammersmith. The plant is of the size of M. squàlens; the scapes are many-flowered, and the flowers unspotted; the foliage is fine, and varies from 8 in. long and 3 in. broad, to 18 in. long and 2 in. broad. At the close of the description of this species, Professor Lindley gives a systematic enumeration of 38 species of this genus, 18 of which are already living in Britain. (*Bot. Reg.*, Dec.)

atropurpùrea *B.C.* dark purple-*flwd* £ [△] or 1 jl.au D.P Brazil 1828. D p.r.w Bot. cab. 1877

"It flowered in July and August, 1832, remaining very long in perfection. The beauty of this flower, and its singularity, both in form and colour, render it a most valuable addition to the number of the orchideous plants; to which, if we unite its delicious fragrance, there will be few more desirable." (*Bot. Cab.*, Dec.)

Warre*àna* Lod. Warre's £ [△] or 2 au W,P.Y Brazil 1829. D p.r.w Bot. cab. 1884

A magnificent plant, received, with many other orchideous plants, by Messrs. Loddiges, from their friend, Frederick Warre, Esq., who collected it in Brazil. (*Bot. Cab.*, Jan. 1833.)

***SACCOLA'BIUM** *Blume.* (*Saccus*, a bag, *labium*, a lip; labellum with a bag.)
papillòsum *Lindl.* pimpled ℰ [△] or 1 au.s W.spot India 1828 ? D p.potsh Bot. reg. 1552

"The genus Saccolàbium consists of a large number of caulescent epiphytal species inhabiting the continent and archipelago of India. It comprehends some of the most interesting and beautiful of the tribe, all of which are cultivated, without difficulty, by being suspended in pots filled with potsherds, intermixed with a little earth, from the back wall of a damp and hot stove." S. papillòsum has its flowers white, spotted with yellow and purple. It was introduced to the Horticultural Society's Garden, by Dr. Wallich. (*Bot. Reg.*, Jan. 1833.)

CCXL. *Orchìdeæ* § *Epidéndreæ.*

2554. **EPIDE'NDRUM.** [3209
22743*a* Harrisòn*iæ* Hook. Mrs. Harrison's ℰ [△] or 1 ... Pa.G.Wsh Brasil 1830 ? D p.r.w Bot. mag.

"This is a fine and very distinct species, allied in size and general mode of growth to E. nùtans, but very different in the form of the labellum. . . . Flowers large, of a pale, delicate green, whitish in the centre, arranged in a corymb-like raceme." (*Bot. Mag.*, Jan. 1833.)

CCXLII. *Marantà*ceæ.

3. **CALA'THEA.**
51*a* orbiculàta *B. C.* round-*lvd* ¥ [△] or 2 ? au.s Y W.Indies ? 1830. D l.p Bot. cab. 1879

"We received this fine plant, in 1830, from the Leyden Garden: it is probably a native of the West Indies, and requires constant preservation in the stove." (*Bot. Cab.*, Dec.) We are not absolutely certain whether the specific name is meant to express the figure of the head of flowers, or that of the fine foliage, but we have concluded for the latter.

CCXLVII. *Asphodèleæ.*

1054. ***SCI'LLA.***
8816*a* ? villòsa *Desf.* villous-*lvd.* ♉ △ or ½ ... Li Tripoli 1831. O p.l Bot. mag. 3211

"Specimens of this pretty little plant, which, no doubt, will bear cultivation in a warm border in the open air, I received from my friend, Dr. Dickson, in 1831, who had gathered them in the neighbourhood of Tripoli. Among the specimens, some of the bulbs yet retained life: these were planted in the stove, at the Botanic Garden, Edinburgh, and flowered there in November, 1832." (*Dr. Graham*, in *Bot. Mag.*, Jan. 1833.)

Mr. Haworth has, in a late number of Taylor's *Philosophical Magazine*, presented some useful information on species of the genus *S*cílla, of which the following is the amount: — *S.* plùmbea *Bot. Reg.*, t. 1355., is the same as *S. hyacinthòides* Linn. and *Bot. Mag.*, t. 1140. *S*cílla esculénta *Bot. Mag.*, t. 1574., must be very different from, and not even of the same genus as, the *Camássia* esculénta *Bot. Reg.*, t. 1486. *S.* unifòlia *L.*, *S.* pùmila *Brot.* (monophýlla *Link*), and *S.* pùmila *Bot. Mag.*, t. 3023., are the same plant. Mr. Haworth distinguishes, by the relative length of their bracteas the *S.* peruviàna of Linnæus's herbarium, and that figured in *Bot. Mag.*, t. 749., into two species: to the latter he applies the name of præbracteàta, retaining the name of peruviàna for the plant of Linnæus.

1078. **MI'LL*EA*** Cav.
†6978 biflòra *Cav.* two-flowered ✱ △ or 1½ au W Mexico 1826. D a.l Bot. reg. 1555

Already in *Hort. Brit.*, p. 137., but less accurately than as here given. It is a most charming plant, with rushy leaves, and a rushy scape, surmounted by an umbel of from two to four, long-peduncled, erect, salver-shaped blossoms; the tube of each of which is more than half an inch long, and the border, of six segments, spreads flatly to the width of 2 in. The segments, on their upper or inward side, are as white as snow, on their outside greenish, and, when once expanded, remain so through many days, not closing up at nights, in the manner of the ornithogalums. M. biflòra is from the mountainous parts of Mexico; and, planted out in the Horticultural Society's Garden, in a cold pit facing the south, from which the frost is just excluded in winter, it flowered beautifully in August last. The flowers were of a white so pure, that snow itself is not more colourless. Increasable by seeds, which hitherto have been but sparingly produced. (*Bot. Reg.*, Jan. 1833.) I saw this plant blooming in the Horticultural Society's Garden, on Sept. 3. or 4. 1832, and was there told that the flowers effuse a very fragrant odour in the evening. This is not stated in the description. The rushlike leaves drawn through the fingers have a roughness.

*PHA'RIUM *Herb.* (*Pharos*, a veil; ovarium concealed in a membranous cup.)
6. 1. *Asphodèleæ* Sp. 1. —
fistulòsum *Herb.* hollow-*lvd* ☿ ⌊△⌋ or 1 s P.W Mexico 1831. O s.l.p. Bot. reg. 1546

" This curious and exceedingly pretty little bulb flowered in the greenhouse, at Spofforth, in September, having been imported from Mexico by Mr. Tate, of the Sloane-street Nursery, Chelsea. Its leaves closely resemble those of *Melánthium júnceum*; its slender scape is crowned by an umbel of six pendulous flowers on peduncles 1½ in. long, which have spathaceous bracteæ at their base. The segments of the perianth, six in number, so spread as to form a cup-shaped flower: they are externally of a rosy purple colour, each with a green line down its centre; within they are white, edged with rosy purple, and have also a central line of this colour. This, to botanists, is a very interesting plant." (*Bot. Reg.*, Dec.)

Phórmium tènax is admirably figured on a double plate, and has eight pages devoted to the description of its structure and uses, in the *Bot. Mag.* for December, 1832, t. 3199. The specimen figured blossomed in June, 1832, in the green-house of Joseph Boultbee, Esq., of Springfield, Knowle, near Birmingham, who describes it as, " though not a brilliant, yet a very handsome and magnificent plant." The flower-scape was " 12 ft. in height, and bore thirteen branches, the lower ones of which sustained about twenty flowers; the remaining branches bore successively fewer as they arose on the scape." The flowers, which all rise erect, so as to stand on the upper side of the branches, are, although of six leaflets, of a tubular form; they are 1½ in. in length; the three outer of the leaflets are of dull brownish orange colour; the inner a full yellow; capsules were freely produced. After a technical description of the plant in all its parts, its economical properties are expatiated on at much length, and those who would know the details must have recourse to the article. The amount of it appears to us to be, that the fibre of the leaves has been made into ropes, &c., which have, by using them in shipping, been proved stronger and more durable than those made of Baltic hemp; that, in consequence, it is quite desirable that marine cordage, &c., made of the leaves of *Phórmium tènax*, should receive increased adoption; and that every circumstance tending to expedite this end, and also to promote an improved preparation of the fibre, and, as well, the manufacturing of it into the articles for which it is fittest, should be promoted by individuals, and even by government. Mr. Allan Cunningham judiciously suggests, that, under present circumstances, this can best be done by inducing the New Zealanders themselves to a more extensive preparation of the fibre than they now effect, by offering to them in exchange those objects of European manufacture of which they are most desirous: these are arms, apparently chiefly fire-arms and ammunition. " Although most of the chiefs can now muster a large force armed with muskets, their avidity to add to their armoury has undergone no diminution; and, with the exception of blankets, red woollen shirts, and other warm clothing, tobacco, and sugar, scarcely any other article of English manufacture or merchandise has, as yet, any attraction for them. The quantity of fibre of this plant, exported in 1820 from New Zealand into Sydney for the English market, was 60 tons; in 1830 it was 841 tons, and in 1831, 1062 tons. Its present price in London may be stated at from 15*l.* to 25*l.* a ton; the price depending on its quality and the clean manner in which it is brought into the market." (*Bot. Mag.*, Dec.)

CCXLIX. S*milàceæ.*

1041. OPHIOPO'GON.
Jáburan B. C. Jaburan £ ⊥△| or 1 jl.au W Japan 1830. D s.p.l. Bot. cab. 1876

A very interesting species, with foliage like that of O. spicàtus, but, in the specimen figured, the spike has fewer flowers than has the spike of O. spicàtus, but the blossoms are longer, on longer pedicels, white, more tubular, and somewhat pendulous. Messrs. Loddiges received it in 1830 from the Leyden Garden, named Slàter*a Jáburan.* "It will thrive very well in the green-house, even perhaps out of doors." (*Bot. Cab.*, Dec.)

LEAFLESS FLOWERLESS PLANTS.

CCLXXI. F*úngi.*

3273. ÆCI'DIUM.
cancellàtum *Sow.* latticed mammose ¼ aut Br. On leaves and fruit of pear trees. Sow. 409, 410. Synonymes. Persoon. *Myc.* p. 205. n. 2. Mougeot et Nestler, n. 184. Appendix to *Midland Flora*, vol. iii. part i. p. 295.

For some of the characteristics and habits of this species, see our last Number, Vol. VIII. p. 738, 739.

quadrífidum *Dec.* 4-cleft peridia, one-sixteenth. On the leaves of *A*nemòne coronària. See *Gard. Mag.*, vol. iii. p. 491.
"Cæòma quadrífidum *Link* in Willd. *Sp. Pl.*, vi. part ii. p. 65."

Sir, The annexed is a list of plants cultivated in this garden, which I do not observe in your *Hortus Britannicus*, or *Supplement*. They may be of use for some of your publications. I have added what little information I know of them. Some of the names may, upon examination, turn out to be only synonymes. I believe we have a few more names when searched out. I am, Sir, yours, &c. — *David Cameron. Botanic Garden, Edgbaston, Birmingham, Dec.* 24. 1832.

727. ALTERNANTHE'RA.										
filifórmis *Link.*	thread shaped			...	...	...	......	...		l.p
nodiflòra *R. Br.*	knot-flowered			...	...	...	......	...		l.p
1840. *A*LY'SSUM.										
procúmbens	trailing	m.	△	rk ...	...	...	......	...		
1341. ANDRO'MEDA.								[Hook. ex. fl.		
salicifòlia	willow-lvd	m.	⊔ or	3	ju	Pk	Mauritius	1830.	C	s.p
This must be a different species from No. 11,044 of *Hort. Brit.*										
1827. *A'*RABIS.										
flexuòsa *Ten.*	zigzag	£	⊙	...	...	...	Naples	1832.	S	co
1890. ARENA'RIA.										
nemoròsa	sylvan	m.	△ pr		su	W	......	1832.	D	co
2313. *A*RTEMI'S*IA.*										
sacròrum		⚘	△	un ...	...	...	......	1832.	D	co
1968. *A*NTHY'LLIS.										
Webbi*àna*	Webb's	£	⊥△| pr	1	jl	Pk	Teneriffe	1829.	D	l.p
1061. *A*SPHO'DELUS.										
microcárpus	small-podded	♉	△	...	...	...	Sardinia	1831.	O	l.p
2938. ASPI'DIUM.										
crinìtum *Boj.*	haired	£	[△] or	1	au	Br	Mauritius	1831.	D	p.l
lùcens *Boj.*	shining	£	[△] or	1	au	Br	Mauritius	1831.	D	p.l
2102. *A*STRA'GALUS.										
lactiflòrus *Led.*	milk-flowered	⚘	△	...	...	...	Siberia	1832.	D	s.l
Schanginiànus Led.		⚘	△	...	...	..	Siberia	1832.	D	s.l
835. *A*THAMA'NTA.										
stricta *Led.*	upright	⚘	△	un ...	...	...	Siberia	1831.	D	co
1630. *A*TRAGE'NE.										
macropétala *Led.*	large-petaled	⚶	or	...	...	...	Russia	1831.	L	l
2654. BEGO'N*IA.*										
*à*cerifòlia *Otto*	Maple-lvd	m.	[ ] or	3	...	...	Brazil	1829.	C	l.p
monóptera *Otto*	one-winged	⚹	[△] or	2	au	W	Brazil	1829.	D	l.p
2362. BE'LLIUM.										
crassifòlium *Mor.*	thick-lvd	£	⊥△| pr	½	su	W	Sardinia	1831.	D	co
1668. *B*ETO'NICA.										
serótina	late-*flowering*	⚘	△	...	...	...	......	1832.	D	co

861. *B*UPLEUˋRUM.											
altàicum *Led.*	Altaic	⸙	△	un	...	...	...	Altai	1831.	D	co
3357. CALANDRI'N*IA.*											
speciòsa *Lehm.*	showy	¥	⌊△⌋	el	2	su	Li	......	1832.	S	l.p
1416. CERA'STIUM.											
collìnum	hill	♀	△	or		jl	W	......	1831.	D	co
1176. CHLOˋRA.											
serótina	late-*flowering*		⊙	cu	1	n	Y	......	1832.	S	l.p
2340. CINERAˋRIA.											
macrophýlla	large-lvd.	⸙	△	or	...	...	...	......	1831.	D	co
auriculàta	eared	⸙	△	or	3	au	Y	......	1831.	D	co
thyrsöìdea	thyrsus-formed	⸙	△	or	...	...	...	......	1832.	D	co
multiflòra	many-flowered	¥	⌊△⌋	or	2	su	W	Teneriffe	1829.	D	l.p
*t*ussilaginöìdes	Coltsfoot-like	¥	⌊△⌋	or	2	aut	Li	Teneriffe	1829.	D	l.p
2047. CORYDAˋLIS.											
longiflòra *Led.*	long-flowered	✱	△		...	...	...	Siberia	1832.	D	p.l
1409. *C*OTYLEˋDON.											
Lievèn*ii*		¥	⌊△⌋	cu	...	...	...	......	1832.	D	l.p
2215. *C*REˋPIS.											
póntica	Pontic	⸙	△	un		au	Y	......	1832.	D	co
multicaúlis	many-stemmed	⸙	⊙	un		au	Y	......	1832.	S	co
1964. *C*Y'TISUS.											
uralénsis *Led.*	Uralian	ʬ		or			...	Russia	1832.	L	l
825. *D*AU'CUS.											
hispánicus	Spanish	✱	⊙	un	1	jl	W	Spain	1831.	S	co
1386. DIA'NTHUS.											
spinòsus *Led.*	spiny	⸙	△	or	2	au	Pk	M. Lebanon	1831.	C	l
taúricus	Taurian	⸙	△	or	1	au	Pk	Tauria	1831.	D	co
2353. *DORO'NICUM.*											
macrophýllum	large-leaved	⸙	△	or	2	jl	Y	......	1828.	D	co
1846. *D*RAˋBA.											
stylàris	styled	¥	⊙	pr	...	...	...	......	1832.	S	l.p
grandiflòra	large-flowered	¥	△	pr	...	...	...	......	1832.	D	l.p
2468. *E*CHIˋNOPS.											
bannáticus	Hungarian										
2-álbus	white	⸙	⊙	?	...	...	W	Hungary	1832.	S	co
dahùricus	Dahurian	⸙	△	or	3	au	B	Dahuria	1828.	D	co
2332. *E*RI'GERON.											
elongàtus	lengthened	⸙	△	un	1	jl	Wsh	......	1829.	D	co
ciliàtus	ciliated	⸙	△	un	...	...	...	......	1832.	D	co
822. *E*RY'NGIUM.											
macrophýllum	large-leaved	⸙	△	or	...	...	...	......	1831.	D	co
1867. *E*RY'SIMUM.											
altàicum	Altaic	¥	⊙	un	1	s	Y	Altai	1831.	S	co
880. *FE*'RULA.											
ammonìaca	ammoniac	⸙	△	m	...	...	...	Persia ?	1831.	S	co
348. *G*AˋLIUM.											
arenàrium	sand	¥	△	un	1	...	...	Sardinia	1832.	D	co
1963. *G*ENI'STA.											
ephedröìdes	Ephedra-like	ʬ		or	4	...	...	Sardinia	1831.	L	l
1932. *G*ERAˋNIUM.											
mexicànum *Humb.*	Mexican		⌊△⌋	?	1	su	L	Mexico	1832.	S	l.p
affìne	related	⸙	△		...	...	...	......	1832.	D	co
1384. GYPSO'PHILA.											
Gmelìn*i*	Gmelin's	⸙	△		1	au	W	......	1831.	D	co
1916. HERMA'NN*IA.*											
inflàta *Otto*	inflated	ʬ	⌊ ⌋	cu	3	au	Taw	S. America	1829.	C	l.p
2211. *H*IERAˋCIUM.											
Ledeboúr*ii*	Ledebour's	⸙	△	un	1	su	Y	......	1832.	D	co
Jacquìn*ii*	Jacquin's	⸙	△	un	...	...	...	......	1832.	D	co
3374. *H*ORMIˋNUM.											
virgínicum *Dec.*	Virginian	⸙	△	un	2	jl	R	N. America	1832.	D	co
981. HYPO'XIS.											
grácilis *Lehm.*	slender	♉	[△]	pr	½	su	Y	Mexico	1829.	O	l.p
142. *I*ˋRIS.											
Blondòw*ii* Led.	Blondow's	⸙	△	or	...	...	...	Altai	1832.	D	co
2136. *LA*'THYRUS.											
altàicus *Led.*	Altaic	⸙	△		...	...	...	Altai	1832.	D	co
2207. LEO'NTODON.											
ceratóphorus *Led.*	horn-bearing	✱	△	un	...	au	Y	Russia	1831.	D	co
glaucánthos *Led.*	sky-blue flowered	✱	△	un	...	au	Y	Russia	1831.	D	co
leucánthos *Led.*	white-flowered	✱	△	un	...	au	Y	Russia	1831.	D	co
1873. *L*EPI'DIUM.											
cordàtum	heart-shaped	⸙	△	un	...	...	...	......	1832.	D	co
Ecklòn*ii*	Ecklon's		○	cu	1	...	...	......	1832.	S	co
921. *L*IˋNUM.											
palléscens *Led.*	palish	¥	△	or	1	ju	Li	Siberia	1831.	D	p.l

622. **LONI'CERA.**											
Pallàsii	Pallas's	♣			...	...	...	Siberia	1832.	L	co
2004. ***MA'LVA.***											
Mullèrii Roch.	Muller's	£	◐		...	...	...	Sardinia	1832.	S	co
Morènii	Moren's	♣	⊔	or	3	su	Li	Chile	1832.	C	l.p
vitifòlia *Cerv.*	Vine-leaved	£	⊡	un	3	s	W	Mexico	1828.	S	co
144. **MA'RICA.**											
cœléstis *Lehm.*	blue-blossomed	¥	⌊Δ⌋	or	3	au	Li	Mexico	1829.	O	l.p
1783. ***MI'MULUS.***											
andícola	Andes-inhabiting	£	⌊Δ⌋	un	½	my	Y	Chile	1831.	D	l.p
2101. **OXY'TROPIS.**											
argyrophýllus	silvery-leaved	⚘	Δ		...	...	...	......	1831.	D	s.l
882. ***PEUCE'DANUM.***											
seseliöìdes	Seseli-like	⚘	Δ	un	...	...	...	......	1831.	D	co
dăùricum *Led.*	Dahurian	⚘	Δ	un	...	...	...	......	1831.	D	co
2210. ***PI'CRIS.***											
nepalénsis	Nepal	⚘	Δ	un	1	jn	Y	Nepal	1832.	D	co
læ'vis *Led.*	smooth	⚘	◐	un	...	jl	Y	......	1832.	S	co
1274. **POINCIA'*NA.***											
Gilliè*sii* Wall	Gillies's	♣	⊔	or	...	...	...	Mendoza	1832.	C	l.p
1528. **POTENTI'LLA.**											
conférta	crowded	⚘	Δ		...	...	...	......	1831.	D	co
dealbàta	whitened	⚘	Δ		...	...	...	......	1831.	D	co
stolonífera *Lehm.*	shoot-bearing	⚘	Δ		...	...	...	......	1831.	D	co
2375. ***PYRE'THRUM.***											
incànum *Led.*	hoary	⚘	Δ	or	...	...	...	Siberia	1831.	D	l.p
657. ***RHA'MNUS.***											
cardiocárpus	heart-podded	♠			...	...	...	......	1832.	L	co
2411. **RUDBE'CK*IA.***											
aspérrima *Horn*	roughest	⚘	Δ		...	...	...	......	1832.	D	co
1410. ***SE'DUM.***											
altàicum	Altaic	£	Δ		½	...	...	Altai	1831.	D	co
844. ***SE'SELI.***											
stricta *Led.*	straight	⚘	◐	?	...	...	...	Siberia	1831.	S	co
2023. ***SI'DA.***											
chloròphis *Wall.*		£	◐	? pr	2	n	Ysh	India	1832.	C	l.p
1388. **SILE'NE.**											
altàica *Led.*	Altaic	⚘	Δ	pr	1	au	Ysh	Altai	1831.	D	co
stylòsa	stylose	⚘	Δ	pr	½	jl	Ysh	......	1831.	D	co
1884. ***SINA'PIS.***											
dissécta *Lag.*	cut-*leaved*	⚘	◐		...	...	...	Sardinia	1832.	S	co
2203. ***SO'NCHUS.***											
dentàtus	toothed	⚘	Δ	un	...	...	...	......	1832.	D	co
racemòsus	cluster-*flowered*	⚘	Δ	un	...	...	...	......	1832.	D	co
929. ***STA'TICE.***											
aúrea	golden	⚘	Δ	or	...	...	Gr	......	1832.	D	l.p
2273. **STE'V*IA.***											
violàcea *Cerv.*	violaceous	⚘	Δ	or	3	aut	V	Mexico	1829.	D	l.p
1648. ***TEU'CRIUM.***											
‖ lævigàtum	smoothed	£	⌊Δ⌋		...	...	...	......	1832.	D	co
1633. ***T*HALI'CTRUM.**											
rèpens	creeping	⚘	Δ		...	...	...	Russia	1832.	D	co
appendiculàtum	appendicled	⚘	Δ		...	...	...	Russia	1832.	D	co
microcárpon	small-podded	⚘	Δ		...	...	...	Russia	1832.	D	co
exaltàtum	tall	⚘	Δ		...	...	...	Russia	1832.	D	co
1681. ***THY'MUS.***											
spicàtus	spiked	♣	⊔	or	1	aut	P	Pyrenees	1832.	C	l.p
córsica		£	Δ	cu	...	su	Li	Corsica	1831.	D	l.p
1826. **TURRI'TIS.**											
Gràhami Lehm.	Graham's	£	◐	?	...	...	...	......	1832.	S	co
1749. ***VERBE'NA.***											
littoràlis *Humb.*	shore		◐	un	3	my.jl	Cin	S. America	1832.	C	co
radìcans *Hook.*	rooting	♀	⊔	or		su	Li	Chile	1832.	C	l.p
45. ***VERO'NICA.***											
rèpens *Dec.*	creeping	♀	Δ	or		sp	W	Europe	1829.	D	co
mòllis	soft	⚘	Δ		...	...	...	......	1832.	D	co
Michaúxii	Michaux's	⚘	Δ		...	...	...	......	1832.	D	co
nitens	glossy	⚘	Δ		...	...	...	......	1832.	D	co
701. ***VI'OLA.***											
occúlta *Lehm.*	hidden		○	cu	½	jn.jl	Vy	......	1832.	S	co
trícolor, 2 élegans *Led.*	elegant	£	◐	or	½	su	Vy	Altai	1832.	C	co

Among the plants imported by Mr. Charlwood, through Mr. Alexander Gordon, and placed under the skill and care of Mr. Dennis, are, it is expected, some new species. We wish some botanist would investigate them.

Mr. Hitchen's Collection of Succulent Plants at Norwich. — In Vol. VIII. p. 244. we noticed that this fine and unequalled collection was about to be disposed of, and there expressed our hope that it would be bought entire by some society, or some emulous lover of plants. Mr. Hitchen, we are pleased to learn, entertains the same feeling; and, in consequence, yet retains the collection unsold, although applications have been made to him, unsuccessfully, for parts of it. In a late communication, Mr. Hitchen thus expresses himself on this point:—" After so many years have been occupied, and much money spent in collecting them, I am desirous of their going together where they may be seen. What an acquisition would they be, from their great novelty, at the Birmingham new botanic garden; or that of Primrose Hill [were it formed], where, I am sure, they would attract general attention." Mr. Hitchen has furnished us with a list of his species of *C*ácteæ, except those of the genus *O*púntia; and we readily insert it, from a conviction that it will much interest our botanical readers. Although Mr. Hitchen does not enumerate the species he possesses of the genus *O*púntia, he passingly notices that, amongst his species, are " the curious micródasys, rubéscens, *r*òsea, virgàta, tunicàta, decípiens, exuviàta, and cochenillífera, with the true cochineal insect alive upon it."

Melocácti and Echinocácti: íngens *Otto*, gibbòsa, Ottò*nis*, tenuispìna, ténuis (Mammillària), tephracántha, melocactifórmis, coccínea *Gillies*, Gilliès*ii*, múltiplex, parvispìna, recúrva, sulcàta, latispìna, polymórpha, solitària, centetèria, magnimámma; oxygòna *Otto*, blossoms a foot long; cornígera *Dec.*, erinàcea, depréssa: New, and not named, species from St. Kitt's, from Buenos Ayres, from Rio Grande, two from Mexico, two from Brazil, and all the seeds of *C*ácteæ, brought by Mr. Cuming from South America, which have produced plants as large as nuts.

Mammillària atràta, angulàris *Otto*, cæspitòsa *Salm.*, dénsa *Salm.*, subcròcea *Salm.*, stélla auràta *Otto*, chrysántha *Otto*, coronària, díscolor, flavéscens, fuscàta *Otto*, fuscàta var. *Otto*, geminispìna, geminispìna var. from Mexico, magnimámma, parvimámma, prolífera, stellàris, cylíndrica, formòsa, spinòsa, tenticulàta, Lehmánn*i*, vivípara, depréssa, eriacántha, ambígua *Gillies*, sessìliflòra *Murray*, tubiflòra *Murray*, crinifórmis *Dec.*, subangulàris *Salm.*, símplex *Salm.*, cornígera *Dec.*, five from Mexico not named, var., spines hooked, small white-spined, six from various places not named.

Cèreus multangulàris, scòpa *Link*, senìlis, strigòsus, rosàceus *Otto*, peruviànus, var. monstròsus, hýstrix *Salm.*, ebúrneus *Salm.*, crenulàtus *Salm.*, albispìnus *Salm.*, stríctus *Willd.*, nóbilis, nìger, chiloénsis, Royèn*i* Link., lanuginòsus, cándicans, repándus, subrepándus, læ̀tus, Dépp*ei*, *Pitajàya*, obtùsus, serpentìnus, flagellifórmis var. mìnor, grandiflòrus, grácilis, trípteris, speciosíssimus, coccíneus triangulàris var. mìnor, var. variegàtus, prismáticus, tríqueter, exténsus, setàceus, squamulòsus, myosùrus, aúreus, alpìnus, andícolus, horizontàlis, foliòsus, pelárgu, attálicus, sanguisórbus, pentálophus *Dec.*, réptans, leptòphis, cineráscens, hexangulàris, vivíparus, sp. from Mexico *Otto*, sp. from Buenos Ayres, and several others, whose names or habitat I know not.

Epiphýllum speciòsum, vars. rose-coloured, darker, light scarlet, dark scarlet, Ackermánn*i*; Hítchen*i*, scarlet flowers near 8 in. in diameter; alàtum, ramulòsum, *P*hyllánthus var. grandiflòrus, marginàtum, crispàtum, truncàtum, and several others from Mexican seeds which have not yet flowered.

Hybrid Jenkinsòn*i*, Vandès*iæ*, Curtís*ii*, and others, Cèreus, between grandiflòrus and speciosíssimus; Cèreus, between flagellifórmis and Epiphýllum speciòsum; and between speciòsum and Hítchen*i*.

Mr. Hitchen adds the following remark: — "Many of the South American *C*ácteæ will live, and do well, in the temperature in which a Pelargònium will live, and some of them, I believe, would live out of doors, if protected from wet in winter. I have known some of them survive a sharp winter in a neglected green-house, when every plant in it has been killed except themselves and Cèreus flagellifórmis. This plant, wonderful to relate, will bear the extremes of heat and cold, if, in both cases, kept dry. The fruit of *C*áctus (Epiphýllum) speciòsa is delicious when quite ripe, but care must be taken to remove the small clusters of spines upon the skin, or they get into the tongue, and are exceedingly troublesome. Every flower may be made to fruit, by impregnating the pistil with the pollen of the stamens in the same flower. — *Oct.* 20. 1832."

Plants in Flower, Nov. 16. 1832, *in the open Ground, in the Gardens of Mrs. Marryat, Wimbledon House.*

*A*ntirrhìnum 6 var.
A'ster 8 sp.
*A*gératum cælestìnum and mexicànum.
*A*chillè*a* tomentòsa and serràta.
Alonsò*a* lineàris and *u*rticifòlia.
Argemòne ochroleùca and grandiflòra.
Anácyclus valentìnus.
Alstrœmèr*ia* psittacìna.
Agrostémma Flós Jòvi*s*.
*A*sphódelus fistulòsus.
Ammòbium alàtum.
*A*lthæ'a *c*annábina.
*A*nagállis Monélli and grandiflòra.
A'rbutus *U*'nedo and *U*'nedo rùbra.
Arnopògon Dalechámp*ii*.
Boltòn*ia* *a*steròides and *g*lastifòlia.
Calceolària bícolor, angustifòlia, pinnàta, thyrsiflòra, rugòsa, and paniculàta.
Campánula 3 sp.
Chelòne diffùsa, glàbra, and atropurpùrea.
*C*entaurè*a* moschàta and *C*ỳanus 4 var.
Carnation 1 var.
*C*erínthe áspera.
Caléndula ? sp. yellow.
Calliópsis Atkinson*iàna* and tinctòria.
Cheiránthus *Cheìri* and fruticulòsus.
Cobæ'*a* scándens.
Corrigìola littoràlis.
*C*hrysánthemum carinàtum and sinénse 36 var.
Cydònia japónica.
Cùphea procúmbens.
Calámpelis scàbra.
Collíns*ia* grandiflòra.
Diánthus japónicus, supérbus, and chinénsis 4 var. flòre plèno.
Dracocéphalum canéscens.
*D*elphínium Ajàc*is* flòre plèno, cheilánthum, and grandiflòrum.
*E*rýngium Andersòn*i*.
Eròdium multicaúle.
*E*rígeron glabéllus and Villárs*ii*.
*E*rìca 4 kinds.
Erythrolæ'na conspícua.
Echinàcea serótina.
Fúchs*ia* coccínea.
Georginas 50 varieties.
*G*erànium 4 kinds.
Galèga bíloba.
Galinsòg*ea* trilobàta.
Gaillárd*ia* aristàta and bícolor.
Hydrángea horténsis and *q*uercifòlia.
*H*eliotròpium peruviànum.
*H*ibíscus africànus.
Hunnemánn*ia* *f*umariæfòlia.
*I*bèris angustifòlia, sempervìrens, semp. variegàta, and Tenore*àna*.
*L*upìnus mutábilis and pulchéllus.
*L*àmium maculàtum.
Linària alpìna, paniculàta álba, *s*partea, and triornithóphora.
Lobèl*ia* spléndens, heteromálla, *E*rìnus, secúnda, and bícolor.
Lopèz*ia* racemòsa.
*L*ýthrum alàtum.
Leptostélma máximum.
Lophospérmum erubéscens.
Mesembryánthemum 2 sp.
*M*álva purpuràta and miniàta.
Matthìol*a* 6 var. of Russian stocks.
*M*àd*ia* élegans.
*M*elampòdium perfoliàtum.
*M*yosòtis palústris.
Meconópsis cámbrica.
Menziès*ia* *p*oliifòlia.
*N*épeta cærùlea and amethýstina.
*N*èj*a* grácilis.

Nicot*iàna* undulàta.
O′xalis floribúnda, carnòsa, and *r*osàcea.
*Œ*nothèra speciòsa, vimínea, Lindley*àna*, serótina, Romanzòv*ii*, macrocárpa, and missouriénsis.
*P*hlóx procúmbens, autumnàlis, and nivàlis.
*P*apàver nudicaúle.
Potentílla álba, formòsa, and Hopwood*iàna*.
Prunélla álba and grandiflòra.
*P*yrèthrum *c*oronopifòlium, *P*arthènium flòre plèno, inodòrum flóribus plènis, and Matricària grandiflòra.
*P*halángium Liliàgo.
Phýsalis *Alkekéngi*.
*R*esèda odoràta.
Rudbéck*ia* fúlgida.
Salpiglóssis Barclay*àna*.
Scabiòsa atropurpùrea.
*S*álvia Gràham*i*, coccínea, fúlgens, coloràta, angustifòlia, and *c*hamædryöìdes.
Stèv*ia E*upatòria, and purpùrea.
*S*èdum red var.
*S*enècio élegans and álbus.
Sóllya heterophýlla.
Tournefórt*ia h*eliotropiöìdes.
Trachymène cærùlea.
Tradescánt*ia* virgínica álba, v. álbida, and 3 other kinds.
*T*agèt*es* lùcida and flórida.
*T*eùcr*ium C*hamæ`drys.
Tropæ`olum peregrìnum màjus.
*T*rachèlium cærùleum.
Trítoma Uvària.
*V*erbèna Aublèt*ia*, bonariénsis, pulchélla, and *c*hamædrifòlia.
*V*íola calcaràta, odoràta 4 var., trícolor 16 var.
Ximenès*ia* encelioìdes.
*R*ósa Champney*àna*, moschàta flòre plèno, and índica 20 var.
*H*ieràcium glutinòsum.
*L*òtus, sp.
*V*ibúrnum *T*ìnus.
*V*erbáscum rubiginòsum.

Total number of species and varieties, 333.

The above list reminds us that, on the 7th of June, 1829, we visited the gardens at Wimbledon, with a view of giving some description of them in this Magazine. The account we prepared immediately on our return, as far as we could, without certain sketches, which we neglected to make on the spot; and, going soon afterwards to the Continent, the subject escaped our memory. As the only apology which we can make, we shall probably give the article exactly as we prepared it at the time, in our next Number. — *Cond.*

ART. V. *Retrospective Criticism.*

On the fraudulent Practices of Gardening Authors. — Sir, I observed a communication from a correspondent of yours in this Magazine (Vol. VIII. p. 289.), signed "An Enemy to Deceit," animadverting, with a considerable degree of asperity, against several fraudulent writers in the *Horticultural Transactions* and Gardener's Magazine, and more particularly against Mr. Alexander Stewart, late gardener at Valleyfield. It is a matter of no ordinary moment, surely, that could bring your worthy correspondent before the public: he seems to be very much afraid lest the uncharitable world should think him of a cavilling disposition, or that he had any ostentatious motive to gratify by the appearance of his paper. Granting that he is free from either of these charges, still there is one thing that the public will be apt to charge him with, namely, ingratitude. He says, that he could give several instances where deceit had been practised; but it would have looked more charitable and consistent in the eyes of the public, had he selected some other example than that of his former and much respected master, then deceased, and who could not defend his character from the vile and ungrateful aspersions thus cast upon it. Although I agree with your correspondent in some of his statements, and do not wish to advance an opinion on the merit or demerit of the theory in question, allow me to say, that it is thought by many gardeners and others, readers of your very useful miscellany here, that such a communication, to say the least of it, comes with very bad grace from him; for this reason, amongst others, that he, whose feelings he means to wound by his puny arrows, had, a considerable time previously to the date of his communication, been called upon to render in his account at the bar of Heaven. He, perhaps, may say he was ignorant of such an event having taken place, at the time he wrote; still, he had plenty of time to prevent its publication, had he been actuated by a generous feeling for the memory of the deceased; or had it been written and published previous to such an event, then he could not be charged with any other motive, but that of a desire to benefit society. With far different feelings will the public, and more particularly those acquainted with the parties, now view the conduct of him, who, there is no doubt, was indebted to Mr. Stewart for many valuable instructions, and who could thus attack his character after his death. I would advise your correspondent to remove the beam out of his own eye, before he again attempts to pull the mote out of those of his neighbours. He would then see that it is not attacking men's opinions after they are dead, and, consequently, cannot defend themselves, that will gain for him the character of a sincere and honest horticultural writer. He has not favoured us with the date of Mr. Stewart's return to the old system from necessity. I can assert, upon good authority, and without fear of contradiction, that, for five years previous to Mr. Stewart's death, he had as good pines as were to be seen in any place in Scotland; Envilles which weighed from 7 to 8 lbs., and queens from 4 to 5 lbs. Now, I question if ever your correspondent had pines of such a size. I can also assert, that there are few men in Mr. Stewart's situation in life who could be more generally respected than he was, not only by the family in which he served for upwards of twenty years, and by his professional brethren, but also by the whole neighbourhood round where he lived. — *A Constant Reader. Perthshire, Nov.* 27. 1832.

The Results of Mr. Cottam's Apparatus for heating by hot Water, at the Earl of Egremont's, at Petworth. [Vol. VIII. p. 148.] — Sir, As the system of heating by water has been for some time, and is still, occupying a considerable share of the attention of horticulturists, any information concerning its results under any given circumstances naturally attracts attention. In your Number for April last, your readers were favoured with a tabular statement of the results of an apparatus at the Earl of Egremont's, at Petworth. On the first glance at this table, I experienced sensations at once of pleasure and regret: the former, that the results at Petworth are so very satisfactory; and the latter, that the like results are not experienced here. The table would have been more perfect, had it given, in an additional column, the quantity of fuel consumed nightly: however, I am perfectly satisfied that much less is consumed than was formerly the case with flues. On looking a little more closely to the table, however, in connection with the preceding statement, I could not resist a doubt creeping over the mind as to its accuracy. Is is stated that upwards of 20° more heat could have been kept up, if necessary: now, on looking at the table, the reader will find, on every evening, from the 14th to the 19th of January inclusive, the temperature of the water in the boiler 212°: from whence, then, was the obtainable 20° to be derived? Assuredly not from the water, which was then at its maximum. Further, there appeared to me some degree of discrepancy in the figures, as given in the table, which I could not very well reconcile: for instance, Jan. 16., at ten P.M., we have, external temperature, 32°; internal ditto, 59°; water 212°; and on the following morning at seven, external temperature, 32°; internal ditto, 64°; water, 168°. It will here be remarked, that while the external temperature continued stationary, the internal *rose* 5°, while the temperature of the water giving out the additional warmth itself *lost* 44°. Again, Jan. 18., at ten P. M., external temperature, 21°; internal temperature, 76°; water, 212°. Here we have the external temperature 11° *colder*, the internal 17° *hotter*, than in the former instance, while the water was the same, viz., 212°; and from ten P. M. on the 18th, till seven A. M. on the 19th, the external air fell 7°, the internal 8°, and the water 52°. To follow figures no farther, I only beg to remark, that, Mr. Harrison [at Petworth] being allowed to be a very clever gardener, a sensible man, and an author (I regret I have not the honour of his acquaintance), his table may lead some persons to entertain expectations as to the results of hot water that will certainly not be realised; a circumstance I should very much regret: and it is with the sole view of preventing mistakes, that I beg the attention of Mr. Harrison may again be turned to the subject. He is, without question, aware that

> " Facts are chiels that winna ding,
> And downa be disputed."

If he would " try again," and in a similar table give us a second series of results, with the *coals* instead of the *winds* in column the sixth, I, for one, would be much obliged to him. The table you mention was communicated by Mr. Cottam. Now, as to him, I do not believe there is any man alive in England that understands the subject better than he does, as far as *scientific principle is concerned.* Its practical application is, perhaps, better understood by many humbler men; and, however flattering the results stated in Mr. Harrison's table may be to Mr. Cottam's apparatus, I feel convinced no one would more regret an erroneous impression being created concerning it than Mr. Cottam himself. I am, Sir, yours, &c. — *J. Hislop. Ashtead Park, Dec,* 10. 1832.

The Button-Wood Tree of the Americans is the Plátanus occidentàlis L. — I mention this, because, although Dr. Mease, in speaking (Vol. VIII. p. 153.) of immense American button trees, has identified them with the genus *P*látanus, yet the button-wood tree of English collections is the shrub Cephalánthus occidentàlis: both this shrub and the *P*látani have, almost doubtless, obtained the name of button wood from their flowers being borne in globular heads, somewhat resembling buttons. — *J. D.*

The Hoop Petticoat Narcissus (*Corbulària serótina* Haw.). — In Vol. VIII. p. 724., you remark the comparative hardihood of this plant, which is a favourite one with me. I had a great many, when I lived in Warwickshire, growing in a border under the south front of the house, and I found them as hardy as crocuses. They were never taken up or covered in winter, and they flowered profusely every season. Many of them grew nearly under the drippings from the roof. They are very showy bulbs, and I wonder they are not more common. — *Selim. Jan.* 1. 1833.

We feel with Selim in admiration of this charming flower; but their rarity is caused by the nurserymen charging 1*s.* 6*d.* for a bulb of this species; so that whoever would gratify his wish to plant a dozen or two bulbs of it in his borders must first have a sovereign or two to spare. We have known a lady, now dead, a lover of flowers, who, on seeing this plant in a garden she had visited, went straight to her seedsman, and ordered half a dozen of bulbs. When they were supplied, they were charged 9*s.*; at which the lady was so surprised, that she begged to decline taking more than one of them. — *J. D.*

Species of Plants in the smoky Atmosphere of London. — In addition to the kinds named, Vol. VIII. p. 244., lime tree and the Siberian lilac may be registered: these are growing in a very confined garden behind the Poultry, and opposite the upper end of Size Lane, Bucklersbury, along with the plane tree, the elder tree, and the Virginian creeper: these three are already mentioned, Vol. VIII. p. 244. — *J. D.*

Difficulties in the Question of Hybridisement between Melons and Cucumbers. (Vol. VIII. p. 611.) — Sir, I have a few observations to make on Mr. Oliver's communication, in Vol. VIII. p. 611., and then the matter must remain *in statu quo* until the course of next season shall have furnished the result of the cultivation of the seeds which I now await from him. In the mean time, I beg to invite whoever of your correspondents may have it in their power to adduce facts which might tend to the elucidation of the subject under discussion, to enregister them in your Magazine, in order that this question may no longer remain in its present indecisive state. Indeed, it is a circumstance which may well excite surprise, that it should be necessary to rake up instances to support what has for so long a period been considered an indisputable fact: and if the event prove, which I doubt not it will, that it has been thus long conceived in error, it is still more astonishing, relating, as it does, to fruit so generally cultivated, and continually under the eyes of so many *presumed* observers. Fully aware that I combat a received opinion, and that, consequently, the majority of the facts which may be brought forward, having been viewed through such a medium, will, in the greater number of cases, throw their weight into the opposite scale, I nevertheless feel certain of the result, provided ample details and minute accuracy are furnished, or the means of obtaining them by personal investigation afforded. Should they, however, prove unanswerable, I shall then, at least, have ground (which hitherto I still consider wanting) for resuming my first opinion; though still deeming myself an unlucky wight, that chance should in other cases have effected what my careful experiments had, in every instance, failed to consummate.

Mr. Oliver has assuredly fallen into error in concluding that the form of the fruit was immediately influenced by the pollen of the melon. It is strictly established and universally admitted, that the embryo of the seed is alone affected, occasioning the production of hybrids in the next succeeding generation; the pericárpium, which is a mere continuation and modification of the branch, undergoing no change consequent on the impregnation of its ovula by pollen foreign to its own. There are divers ways of accounting for the variation of the fruit, any, or mayhap none, of which may be the true one. For instance, a seed of a variety of a melon (which might, too, have been hybridised when in flower) in flavour such as is described, may by chance have been unwittingly sown with the others: such I, at least, possess; having the flavour of cucumber strongly pronounced, when not exposed, during its growth, to the direct rays of the sun, which it is that effects the conversion of the acid, &c. into sugar, and gives to fruit its *proper* flavour. Again, it is certain that the fruit mentioned as only used for mangoes is truly the Cúcumis satìvus. There are others of the same and analogous genera very nearly resembling, more especially the Cùcumis flexuòsus when fecundated by a smooth variety of the melon, and which, as is often the case with Eastern and Persian melons unless cultivated with every disposable artificial aid, do not mature their seeds. Another cause of the barrenness may be, the late season at which the fruit was ripened. Again, the male blossoms may have been wholly, or nearly so, devoid of pollen; and, consequently, from these being grown, as is stated, in a two-light frame, containing no other variety, no fecundation was effected (not an absolute bar to the growth of the fruit). I could raise other objections; but these will suffice to show the necessity of cautiously receiving an isolated and (I still maintain, as far as regards the question in hand) equivocal fact, singly opposed to a mass of careful and varied experiments, as a sufficient proof for the establishment of theory into axiom, for which, nevertheless, *one* well attested, and in all minutiæ without suspicion, would suffice. It is at least certain, that the cause of the hybridisation, in this instance, took place in the year previous to that to which Mr. Oliver refers it.

I anxiously trust Mr. Oliver will not for an instant suppose that I have the slightest intention to impugn the veracity of his statement; but the distance of time may well preclude his perfect recollection of the circumstances; the more, as he does not appear to have made any notes on the subject at the time. He, I doubt not, was, and is, fully persuaded of the particulars of the facts as he narrates them; and the event alone will prove whether correctly or not.

It is dangerous to draw conclusive reasons from analogy between the animal and vegetable kingdoms, however interesting it may be to remark the shades of correspondence and dissimilitude existing in the laws by which both are respectively governed. For instance, analogy would lead us to suppose that, since (from all the light hitherto developed on the subject) a double fraternity is abhorrent to the laws which govern the former, therefore the like would hold good in the latter: whereas experience teaches that such a conclusion would be utterly fallacious; as a double or even triple paternity has been proved possible. I allude, of course, to a single seed and fœtus; for we know that (as with the dog) the parent will bring forth young, which unquestionably establish them to be the offspring of different males.

Mr. Oliver is also mistaken in supposing that mules are incapable of breeding. By coupling the female mule with the horse, or *vice versâ*, foals have been obtained: an instance, in Scotland, was attested on oath by several witnesses; see also Buffon for others. Neither need he any longer doubt the possible fecundity of hybrids in the vegetable kingdom: the descendants of the Nicotiàna *Tabàcum* and undulàta, of the cabbage and turnip, of the cabbage and dark red radish, &c. &c., have produced seed. Indeed, in general, the hybrids are more vigorous, grow more readily from cuttings and layers, seed more abundantly, and hybridise anew with greater facility. Besides, Mr. Oliver's own account corroborates this position. He himself tells us, that the seed taken from the fruits, the product of the first hybrid fecundation, yielded, when grown in a subsequent year, the specimens that were sent to the London Horticultural Society.* These, he says, failed to produce seed: but this is the second generation of the hybrid; and this failure most probably arose from accidental causes, as I have suggested above. — *J. C. K. Levant Lodge, Oct.* 26. 1832.

Hybridizement of the Melon by the Cucumber. (Vol. VIII. p. 611. 741.) — Sir, J. D., in representing (Vol. VIII. p. 741.) that M. Sageret's experience (Vol. IV. p. 383.) agrees with Mr. Oliver's on this subject (Vol. VIII. p. 611.), must have quite overlooked my remarks, in Vol. VI. p. 728., where I show that the opinions attributed in Vol. IV. p. 383. to M. Sageret are not his opinions, but a palpable misrepresentation of them, through a false translation; as may be seen by a reference to M. Sageret's paper, in the *Annales d'Horticulture,* and the two *Mémoires sur les Cucurbitacées.* — *J. C. K. Dec.* 1832.

J. D. had, indeed, quite overlooked J. C. K.'s correction of the erroneous translation; and his bringing forward at all the opinions erroneously ascribed to M. Sageret, in Vol. IV. p. 383., was purely from the accident of having met with them while turning over the leaves of the Magazine in search of some other subject. J. D., on seeing them, regretted that they had not been referred to in the otherwise complete citation of references to every mention of this subject, given Vol. VIII. p. 611. J. D. is much interested in hybrid plants, and for the following reason: — In botany, no question is more palpably undetermined than that of the distinctive limits of species and varieties. No evidence bears more intimately, nor more relevantly, on this question, than the issues of hybridisement; and, to the end of eventual inference, J. D. has carefully registered every instance, and the genealogy, where acquirable, of hybrid plants, which has come to his knowledge within the course of the last two years. See under "Hybrid Plants," and "Hybridising," in the Indexes to Vols. VII. and VIII. of this Magazine. — *J. D.*

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* Why was it not taken notice of by some of the members composing that Society? — *J. C. K.*

On growing and curing Tobacco in Britain for Gardening Purposes. (Vol. VIII. p. 42. 491.) — Sir, As a correspondent has (Vol. VIII. p. 491.) kindly informed me that what I had stated respecting the growth and management of tobacco (Vol. VIII. p. 42.) is not quite correct; and as I have had several years' experience, as well as the testimony of several other people, to convince me that I am right, I do not feel inclined to yield to him until I have consulted you on the subject; and, as I wish nothing to appear in your work as the production of my pen, but that which will be of use to your readers, I shall, on conviction, most willingly acknowledge my error, and return my sincere thanks for the pains he has taken to set me right. I herewith send you a few leaves of this summer's growth, and a small parcel of the same cut up ready for use, both which, I consider, would have been better if kept for twelve months before I had sent it. It may probably happen that myself, as well as those among whom I reside, know but very little about what we call home-grown tobacco; but as this is not likely to be the case with you, I hope you will inform me what is your opinion of the sample sent; and if your correspondent, who differs from me, should favour you with some of his, after seeing my present letter, perhaps you will be kind enough to say which is the best. I should be glad to give him an invitation; but, as I told you before, it does not suit me to let all the world know where I am, I think the plan I have adopted is the only one to learn which has the preference. Your correspondent appears to object to my method of fermenting tobacco after having dried it. Now, I consider this to be one of the most essential parts of the business. I recollect, some time ago, reading in your Magazine, that those who could make good hay might also make good tobacco, or words to that effect. Now, Sir, those who can make good hay know very well, that though it be managed in every respect well before it be put into the rick, yet if it does not acquire a proper degree of heat there, it will not be good: just so I think of tobacco. As respects another observation, which is, that it will still be inferior to that imported, I have only to say, that, if your correspondent means it is not so pleasant to smoke in the pipe, I quite agree with him; as I have sometimes had it so strong that it would make any man's mouth sore to use it. Nevertheless, I also have it sometimes so mild, that those who have tried it preferred it to that sold in the shops under the names of "shag" and "returns." But if he means that it is inferior for gardening purposes, I can only say, that I have upwards of sixty lights of glass, occupied by flowers, peach trees, and vines, and in which I use no other, unless I have not enough of my own growing. — *E. S. Oct.* 23. 1832.

As we know not when A. N. may send us a sample of the tobacco grown and cured by himself, we beg permission of E. S. to say now what we have to say, on that he has sent us. It is admirably dried, of a dark-green tinged with brown, and plentifully supplies a pleasant odour, but which is less narcotic (as we suppose we may call it) than the tobacco of the shops. The portion sent cut was a full brown, and looked much like the shag tobacco, but the shreds were broader. The stock sent us has been given to a gentleman who both chews and smokes. He thus reports on it:—"In the mouth it is devoid of that pungent acid which in the common tobacco stimulates the tip of the tongue so gratefully; and in the pipe it is deficient in strength, so that an habitual smoker could not so well satiate himself with two or three pipes of this as with one of the tobacco of the shops." However, from burning a little of it, we think it likely to prove satisfactorily effective in the destruction of insects or plants; and this is the main point in question. — *J. D.*

Burnt Tobacco stronger than unburnt. — Sir, A great saving might be made, in using tobacco-water for the destruction of insects, by first burning the tobacco; as I find, while enjoying my pipe in the evening, that the tobacco which is half-burnt has nearly double the strength of the other. The waste which burning on purpose would occasion might be obviated by having the tobacco baked on a cast-iron plate, or girdle (a Scottish utensil for cooking bannocks). This may be easily accounted for by the fact, that all liquors, when heated, are much stronger. — *R. Bayswater, Jan.* 17. 1833.

ART. VI. *Queries and Answers.*

REFUSE Putty as a Kind of Manure. — Has any correspondent ever tried, in any way, the refuse putty cut out of old lights, as a manure? Two years ago, I had a heap accidentally placed on a piece of turf, whence it was afterwards cleared off and burnt. Since that time, the grass in that place has required to be mown thrice to once in the other parts, and the grass is of a much better quality; and, notwithstanding the past summer has been so dry, it has continued to grow luxuriantly up to the present time. I intend to apply some putty of this kind to plants in pots, as I think it contains nourishment for plants in the absence of watering; and should this prove the case, it will certainly be of great use to plants thus conditioned. I hope correspondents will try similar and other experiments, and communicate the results. — *E. S. Oct.* 23. 1832.

Chemical Terms relating to Horticulture. (Vol. VIII. p. 735.) — Sir, In answer to Mr. Taylor of Aberdeenshire, I would ask, what are the chemical terms which *do not* relate to horticulture? There are none; for, wide as is the scope of chemistry now-a-days, there is no part of it that may not lie within the field of horticulture. To write the glossary, then, that your correspondent requires, would be to produce a chemical system; and, without having read some systematic work on chemistry, the knowledge merely of the popular meaning of a few *terms* will not be worth much. A knowledge of the learned tongues is not necessary to the full comprehension of chemical nomenclature; but I regret to say, that our English popular works on chemistry are defective in one most important point, viz., that of explaining the language which they speak. There are some differences between our nomenclature and that of the Continent; but the best exposition of the principles upon which ours is founded is, I think, to be found in that first of chemical books, Berzelius's *Traité de Chimie*, Paris edition, now publishing, and not yet, I believe, translated into English. For horticultural purposes, Henry's *System* will be, in general, comprehensive enough; but he who aspires to a thorough knowledge of the science must study Berzelius. There are many books upon particular branches of chemistry, as applied to horticulture, farming, &c., such as Sir H. Davy's *Agricultural Chemistry*, &c., which are worth the attention of those who enter more deeply into the matter. I am, Sir, yours, &c. — *Robert Mallet.* 94. *Capell Street, Dublin.*

The Glastonbury Thorn (Cratæ̀gus Oxyacántha præ̀cox). — Sir, The unsatisfactory, and even contradictory, statements which occur in various works both on systematic botany and on horticulture, respecting the Glastonbury thorn, induce me to trouble you with this communication. Not that I consider myself able to give you full and satisfactory information on the subject; but I hope, at least, to be enabled, from my long residence in the neighbourhood, to describe with accuracy, whatever is known with certainty at Glastonbury about the plant in question. The popish legend about the staff of Joseph of Arimathea I may be permitted to pass over in silence; and, therefore, come at once to a thorn tree, now standing within the precincts of the ancient abbey of Glastonbury; for there can be no doubt that, from this tree and its forefathers (the present one not being of great age) all others of the kind have been propagated by budding or grafting. The most marked peculiarity in this tree, and in those descended from the same stock, is the time of flowering. It is now (Dec. 31.) in blossom, and I transmit you a specimen for examination. It will again blossom in the month of May, and from these latter flowers fruit will be produced. I am informed, but have not myself made the experiment, that plants grown from these haws turn out to be the common whitethorn. Perhaps the exact definition of those differences in vegetables which constitute species and varieties is a subject not fully agreed upon; but, so far as the matter is decided, I would ask, must the Glastonbury thorn be considered a distinct species, or only a variety of the common whitethorn? I remain, Sir, yours, &c. — *Edward Callow. Butleigh, near Glastonbury, Dec.* 31. 1832.

We received the specimens mentioned, from our much esteemed correspondent, who, our readers will recollect, is the author of by far the best work on the cultivation of mushrooms that has ever appeared (see *Gard. Mag.*, Vol. VIII. p. 213.), and found them beautifully in flower, covered with green leaves, and some of having bunches of ripe haws. After giving away sprigs to different friends, we sent the remainder to the Horticultural Society, to whom we have also given some of the haws, in order that it may be proved whether this is really a distinct species or not. In Hone's *Every-day Book* (a most entertaining work) will be found some of the nonsense which used to pass current respecting this tree. — *Cond.*

Seedling Varieties of Delphínium *grandiflòrum var. chinénse* Dec. — Of all the flowers which, at this season of the year [midsummer] ornament our gardens, perhaps the *D*elphínium grandiflòrum stands unrivalled for the freedom with which it flowers, and the brilliancy of its colours. From this plant I have raised the following six varieties: — 1. Flower white, spotted with green; 2. and 3. Flower of two different shades of light blue spotted with green; 4. Flower of fine lilac, the back of the petals slightly spotted with green; 5. Flower of a very brilliant blue, spotted with purple; 6. Flower blue, spotted with purple, a semidouble very showy variety, which is known by some as the *D.* chinénse, but very distinct from the one so called in Loddiges's *Botanical Cabinet*, which appears to be the parent of the above varieties. I have been informed, by a respectable nurseryman, that he has "raised some of all colours;" and, among them, "a fine yellow." Has any one seen this last variety? — *Henry Turner. Botanic Garden, Bury, June* 24. 1832.

The sixth variety above is semidouble. The Rev. S. Alderson of Sicklesmere, near Bury St. Edmunds, in 1830, told me that he had flowered a double-flowered variety of *D.* grandiflòrum; and I believe it was from an unblossomed seedling which he had purchased at the Bury Botanic Garden. These facts subserve the obvious inference that the plant very commonly grown in gardens, for the showiness of its spikes of double blue-flowered blossoms, and called *D*elphínium grandiflòrum flòre plèno, can be no form or variation of the *D*elphínium grandiflòrum above spoken of: it is unlike in stature, in foliage, in the size and form of its flowers, and in its general greater robustness. To which, then, of the species of botanists is this common double-flowered kind referable? I know not, and shall be right glad to learn. There is also a sub-variety of this double-flowered variety, and the sub-variety is of great merit. It emanated from Mr. Wood, nurseryman, Huntingdon, who observed it in a bed of the common, distinguishing itself from all its neighbours. It has since kept constant to its characters: which are, a height nearly double that of the old variety, and branched laxer racemes: so that it is altogether a more showy, airy, graceful plant. — *J. D.*

Capability in the Herbage of the Duckweeds (Lémnæ) *to resist Rotting.* — Sir, I sent you, some time back (Nov. 26. 1832), and without an explanation, a moss of dried *L*émna, or Duckmeat (chiefly *L*émna minor): let me now say that it was for the purpose of showing you its power in resisting decay. The specimen in question I picked out of a border in the garden, shortly before I sent it you; and it had been wheeled into the garden along with dead leaves sufficiently rotted down to make a border for flowers, in November, 1830. The *L*émna must have been gathered from the pond along with other aquatic plants (*P*otamogèton), at the very least, so long ago as the summer of 1828, and probably 1827. The potamogetons, and the dead leaves of the same autumn, were, as I have said, sufficiently decayed to make soil for horticultural purposes in Nov. 1830, but the *L*émna remained in the state you see it, and I can still find other specimens in the same border in as good a state. How comes this little minute plant to continue undecomposed so long after the leaves of all kinds of trees, and its brother aquatics, have been converted into soil? The aquatics, &c., when gathered, were laid in a heap to rot. — *W. T. Bree. Allesley Rectory, Jan.* 10. 1833.

What is the best Method of preserving Walnuts, so as to have the kernel as fresh as at the time of gathering, and yet in a good dry state, and without the shells becoming mouldy? — *E. S. Oct.* 23. 1832.

A trailing Species of Plum, near Montreal. — Sir, We have a singular kind of plum, near the Island of Montreal, found generally in an island exactly opposite the town of Montreal, called the Ile à Pierre (Stony Island), which is always under water in the spring. It is a creeping plum; and sometimes a single tree will cover a space of ground equal to 8 ft. square. It never raises itself from the ground; and when in blossom forms a very pretty sight. Attempts have been made to force it to grow upwards, but without success; the branches growing over the props, and seeking the ground again. Do you know any thing of this species of plum? — *A. P. Hart. Montreal, Nov.* 5. 1832.

Specimens of the plum dried when its flowers are in perfection, again when its leaves are so, and again when its fruit is ripe, so as to supply perfect branches, leaves, flowers, and fruit, would enable some botanist in England to answer our correspondent's query satisfactorily. — *J. D.*

Bark Beds. — Sir, I should be glad if some experienced gardener would give, through the medium of your Magazine, some good directions for managing bark beds; and, in hope of inducing some one more competent than myself, I shall give you what has resulted from my own experience during several years. My bed is made in a brick pit, 9 ft. long, 5 ft. 6 in. broad, and 6 ft. deep; and contains more than two waggon loads of tanner's bark. At first, I made the bed in March, of bark exposed two or three days to drying winds. This heated sufficiently for a time; but when I removed it, in September, I found a large portion of the tan quite dry and perished, by a whitish mould, retaining no heat whatever. In the centre, and towards the bottom, there was moisture, and about 75 degrees of heat. I then renewed the bed by two thirds of fresh tan, just as it came from the pits, without drying, and mixed it with another of the freshest old tan. In a few days this began to heat, and retained a good heat for six months. On this bed I preserved, during the winter, a number of pelargoniums and other green-house plants, giving them all the air I could by day, and covering up at night; and the plants, in general, looked better than those in my green-house. In the March following I renewed my bed again. On this I struck my georginas, raised two crops of melons, struck my pelargoniums and other plants, and, in September last, I renewed it again for winter use. My plan has been, to sift at least one third of the old tan, and mix the undecayed parts with the new tan, until the pit was three parts full, and then add fresh tan to complete it. Since I have adopted this method I have had very little of the grey mould, the bed has retained the heat better, and, on the whole, it has succeeded very well. Some of my neighbours have a well at the back of their beds, in which they put a quantity of dung, to obtain a great heat. They have their pits about 4 ft. wider than their frames, and place a paling partition in the pit at the back of their frames, and have two wooden doors to cover it. The part of the pit under the frame they fill with bark, and, when they want extra heat, they fill the other part with dung, and enclose it with the doors, to keep in the heat, and prevent any unsightly appearance. It may be proper to add, that none of the beds I have referred to are in a hot-house, but are placed in a convenient part of the flower-garden. I have had my beds trodden down in the making, to prevent so much sinking. I keep a stick inserted into the tan, through a hole in the brickwork, to ascertain the heat of the bed; and I have observed that it begins to heat, near the top, in four or five days: in three weeks it is fit for use; and it retains a good heat for six months, when I renew it. — *Joseph Tyso. Wallingford, Nov.* 1832.

On obtaining improved Varieties of Corn by the Cross Impregnation of existing Kinds. — Sir, I would suggest the advantage which probably might be derived from sowing, *in the same field*, the seed not of one sort of wheat only, but the seed of various sorts; so that, when the wheats come to be in blossom, the pollen from each may be diffused among the intermixed wheats, and thus give rise to a new and better seed or grain.

It is a well-known fact, that numberless varieties are produced among flowers, take the poppy for instance, by sowing *in the same bed* the seeds not of one kind of poppy only, but the seeds of different kinds. And Mr. Knight has shown what may be done by fertilising one sort of pea with the pollen of another. Yet, so far as I know, agriculturists have never yet availed themselves of these facts, in regard to the cultivation of that staff of life, wheat corn.

It is obvious that, for the success of this experiment, all, or the greater part, of the different sorts of wheat should come into blossom at the same time. I am, Sir, yours, &c. — *Varvicensis. January,* 1833.

On this very subject Varvicensis will find a useful communication, written by a man possessing both practical and scientific knowledge, in No. XXV. of the *British Farmer's Magazine*, published Nov. 1. 1832. The article is entitled " On the Practicability of improving Corn by manual Impregnation."

Those who wish to adopt practically the suggestion of Varvicensis, may do it, even this season, very conveniently, by transplanting, as soon as the frosts of spring are past, plants of different kinds of wheat into each other's immediate society. — *J. D.*

ART. VII. *Covent Garden Market.*

The Cabbage Tribe.	From £	s.	d.	To £	s.	d.
Cabbages, per dozen:						
Red - - -	0	2	0	0	3	0
Plants, or Coleworts -	0	2	6	0	4	0
Savoys - - -	0	1	0	0	2	0
Brussels Sprouts, per ½ sieve	0	1	0	0	2	0
German Greens, or Kale, per dozen - -	0	0	9	0	1	0
Broccoli, per bunch:						
White - - -	0	1	6	0	2	6
Green - - -	0	0	9	0	1	6
Purple - -	0	1	0	0	1	6
Tubers and Roots.						
Potatoes - per ton	3	0	0	4	0	0
Potatoes - per cwt.	0	3	0	0	4	0
Potatoes - per bushel	0	1	6	0	2	0
Kidney, per bushel -	0	2	0	0	2	6
Scotch, per bushel -	0	1	9	0	2	3
Jerusalem Artichokes, per half sieve - -	0	1	0	0	1	3
Turnips, White, per bunch	0	0	1	0	0	2
Carrots, per bunch:						
Old - - -	0	0	4	0	0	6
Horn - - -	0	0	6	0	0	8
Parsneps, per dozen -	0	0	9	0	1	0
Red Beet, per dozen -	0	1	0	0	1	6
Skirret, per bunch -	0	0	9	0	1	3
Scorzonera, per bundle -	0	1	6	0	0	0
Salsify, per bunch - -	0	1	6	0	0	0
Horseradish, per bundle -	0	1	6	0	4	0
Radishes, Red, per dozen hands (24 to 30 each) -	0	1	6	0	2	0
The Spinach Tribe.						
Spinach per sieve -	0	2	0	0	2	6
Spinach per half sieve -	0	1	0	0	1	6
Sorrel, per half sieve -	0	1	6	0	0	0
The Onion Tribe.						
Onions, old, per bushel -	0	1	9	0	2	6
For pickling, per ½ sieve	0	2	0	0	3	0
When green (Ciboules), per bunch -	0	0	3	0	0	0
Leeks, per dozen bunches	0	0	9	0	1	6
Garlic, per pound - -	0	0	6	0	0	0
Shallots, per pound - -	0	0	6	0	0	0
Asparaginous Plants, Salads, &c.						
Asparagus, large, per hund.	0	10	0	0	15	0
Middling - -	0	3	0	0	6	0
Spruce „ - -	0	2	0	0	4	0
Sea kale, per punnet -	0	1	0	0	3	0
Lettuce, per score:						
Cos - - -	0	0	9	0	1	0
Cabbage - -	0	0	6	0	0	9
Endive, per score -	0	1	6	0	2	6
Celery, per bundle (12 to 15)	0	0	9	0	2	0
Small Salads, per punnet -	0	0	2	0	0	0
Watercress, per dozen small bunches - - - -	0	0	4	0	0	6
Burnet, per bunch -	0	0	1	0	0	2

Pot and Sweet Herbs.	From £	s.	d.	To £	s.	d.
Parsley, per half sieve -	0	1	6	0	3	0
Tarragon, per dozen bunches	0	0	0	0	4	0
Chervil, per punnet -	0	0	0	0	0	6
Thyme, per dozen bunches	0	2	0	0	0	0
Sage, per dozen bunches -	0	2	0	0	3	0
Mint, dried, per dozen bun.	0	1	0	0	0	0
Peppermint, per doz. bun.	0	1	6	0	0	0
Marjoram, per dozen bunch.	0	2	0	0	0	0
Savory, per dozen bunches	0	1	0	0	0	0
Basil, per dozen bunches	0	3	0	0	0	0
Rosemary, per doz. bunches	0	3	0	0	0	0
Lavender, per dozen bunch.	0	4	0	0	0	0
Tansy, per dozen bunches	0	2	0	0	0	0
Stalks and Fruits for Tarts, Pickling, &c.						
Rhubarb Stalks, forced, per bundle - - -	0	1	6	0	2	0
Capsicums, per hundred -	0	2	0	0	5	0
Edible Fungi and Fuci.						
Mushrooms, per pottle -	0	0	9	0	1	6
Morels, dried, per pound -	0	12	0	0	0	0
Truffles, per pound:						
English - - -	0	14	0	0	0	0
Foreign - - -	0	14	0	0	0	0
Fruits.						
Apples, Dessert, per bushel:						
Nonpareils - -	1	0	0	1	10	0
Ribston Pippins -	0	5	0	0	8	0
Reinette grise - -	0	12	0	1	0	0
Golden Pippin - -	1	0	0	1	10	0
Baking, per bushel -	0	2	6	0	4	0
American, per bushel -	1	10	0	0	0	0
French, per bushel -	0	3	0	0	5	0
Pears, Dessert, per ½ sieve:						
Chaumontelle - -	0	4	0	0	8	0
Colmar - - -	0	12	0	1	0	0
St. Germains - -	0	8	0	0	15	0
Passe-Colmar - -	0	8	0	0	15	0
Cranberries, Swedish, per gallon - - -	0	2	0	0	0	0
Walnuts, per bushel -	0	10	0	0	0	0
Chestnuts, per peck:						
English - - -	0	2	6	0	0	0
French - - -	0	2	6	0	8	0
Filberts, English, per 100 lbs.	3	0	0	0	0	0
Pine-apples, per pound -	0	3	6	0	5	0
Hot-house Grapes, late, per lb. - - -	0	3	6	0	5	0
Oranges per dozen -	0	0	6	0	2	0
Oranges per hundred	0	3	6	0	14	0
Bitter Oranges - -	0	10	0	0	14	0
Lemons per dozen -	0	0	9	0	2	0
Lemons per hundred	0	4	0	0	12	0
Shaddocks, per dozen -	0	12	0	1	4	0
Sweet Almonds, per pound	0	1	9	0	3	0
Brazil Nuts, per bushel -	0	12	0	0	16	0
Barcelona Nuts, per peck -	0	5	0	0	6	0
Spanish, per peck - -	0	3	6	0	0	0

Observations. — The market continues to be steadily supplied with most kinds of vegetables, which are of excellent quality, at moderate prices. The continued openness of the season enables the growers to furnish the supply; but the consequence will be, a deficiency before the spring crops come to hand. The general depression which prevailed throughout the autumn, and early part of the winter, continues, and the few forced articles, such as sea kale, asparagus, rhubarb, and French beans, which have as yet been brought to market, have not realised high prices; and as the expense necessarily attending the production of such articles is very great, no doubt the growers suffer considerable loss; but, as the season is advancing in which those articles are more generally in demand, I trust we shall find more consumption, and, consequently, a remunerating price for them; otherwise, I fear, the system of culture, which has advanced so rapidly in the production of so many fine vegetables at this early period of the season, and by which the public have been generally enabled to indulge in these articles at a moderate charge, will fall into decay, and remain only in the hands of the rich private cultivator. The state of the horticultural interest, at the present time, is truly lamentable; and much individual loss must be felt before any improvement can be expected. Fruit, generally, has been of good quality; very little foreign has been imported, our own supplies being good, prices consequently moderate. Onions are in great supply, the crop having been excellent, and the breadth in outline large; the prices very low, attended with great difficulty in effecting sales. Potatoes, which were heavy in the market at the period of the last report, in consequence of an abundant supply at the time, the growers appearing to be anxious to sell to realise capital, are now becoming scarce, and thin in the market; it is pretty generally supposed that the stock in the hands of the growers is getting short, and the dealers, not having many on hand, it is expected they will be in demand, and realise much better prices. — *Cov. Garden, Jan.* 23. 1833.

Art. VIII. *Horticultural Society and Garden.*

Dec. 4. 1832. — *Read.* Notes upon Chinese Chrysanthemums, by Mr. Donald Munro. A paper on the *Zèa Màys*, or Indian corn, by the author of the *Domestic Gardener's Manual.*

Exhibited. Collection of apples, from Mr. Joseph Kirke (25 sorts); and Napoleon pear. Seedling chrysanthemums, from Mr. Isaac Wheeler, Beaumont Buildings, Oxford. Eldon pippins (seedlings), from I. J. Wilmot, Esq., Coventry. Queen pine apple (weight 2 lbs. 8 oz.), from Mr. George White, gardener to Sir Rowland Hill. Hybrid cereus, seedling, hybrid cineraria, from J. L. Snow, gardener to Sir Herbert Jenner, Chislehurst. Twenty-one vars. of chrysanthemums, from Messrs. Chandler. Argemòne Barclay*àna*, Passiflòra racemòsa prínceps; Chinese roses of the following kinds, yellow and blush, sweet-scented, rùbra, single, dwarf Chinese, Barclay's Chinese, pink cluster, multiflòra, from Mrs. Marryatt.

From the Garden of the Society. Flowers: Stenáctis speciòsa, Chimonánthus fràgrans var. grandiflòrus, chrysanthemums. — Fruit. Apples: Hormead pearmain, an excellent bearer; Yellow bellefleur; Bedfordshire foundling, a fine kitchen apple; Belledge pippin; Court pendu plat, escapes the spring frosts, owing to its late blossoming; Downton, Gray queening, Winter queening, Reinette grise, Baxter's pearmain; Dutch Mignonne, a good bearer; Reinette du Canada. Pears: Glout morçeau, continues to be a good bearer as a standard; Passe colmar, Bezi de Caissoy, Ne plus Meuris: some of these have ripened much earlier than usual; Fondante du Bois, Dowler's seedling, Beurré Beauchamps, Colmar. Golden pippin, from John Williams, Esq., grown on common crab stocks and on Siberian crab stocks.

Jan. 15.—*Read.* Observations on the Quality of the Oak Timber produced in Great Britain, by Wm. Atkinson, Esq. A Report on the Growth of certain Varieties of Pears and Grapes, by J. W. Griffith, Esq.

Exhibited. Specimens bearing fresh flowers, and last year's fruit, of the Glastonbury thorn, from Mr. Callow, Butleigh, near Glastonbury. Citrons grown at Hendon, from John Lane, Esq. Apples and French beans, from Mr. Joseph Haythorn. A seedling Prímula præ'nitens, from Mr. James Henderson. Camellias, from John Allnutt, Esq. Strelítz*ia* ovàta, Astrapæ'a Wallíchii, from Mrs. Marryatt. Testudinària elephántipes, camellias, and Bànksia serràta, from Wm. Wells, Esq.

From the Garden of the Society. Flowers: Chimonánthus fràgrans and var. grandiflòrus.—Fruit. Apples: Alfriston, Reinette du Canada, Court pendu plat, Bedfordshire foundling, Hormead pearmain, Rymer, Royal Reinette, Belledge pippin, Raboulink, Ross nonpareil, Baldwin, London pippin, Dutch mignonne, Parmentier, New rock pippin, Baxter's pearmain, Redding's nonpareil. Pears: Easter Beurré, Glout morçeau, Bezi de Caissoy, Bon Chrétien Turc, Ne plus Meuris. Downton nonpareil apple, from T. A. Knight, Esq.

Note relating to the Grapes sent to the Meeting, Nov. 6. 1832.—Schloss Johannisberger, Rudesheimerberger, and Gräfenberger: these appear to be the same. Raisin rouge de Schlossberg à Kreutznach is a *white* grape. Steinberger, and No. 1. unnamed, are the same.

Art. IX. *Obituary.*

Died, on September 9. 1832, at Bury St. Edmunds, *Mure Hogg*, aged 58 years, florist and market-gardener in that town. Mr. Hogg's father was a native of Scotland, and settled at Bury St. Edmunds, in the capacity of florist and market-gardener, and for many years rented the ground which, in 1820, a few years after his death, was converted into the botanic garden. In the house in this garden, his son, Mure Hogg, was born, and continued the occupancy of the house, garden, and business, until 1820, when the premises were let to N. S. Hodson, Esq., who formed them into a subscription botanic garden. Mr. Hogg then removed into a property of his own, with a garden attached; and here, and on additional ground hired, carried on his business as usual. His remains were carried to the grave by six young gardeners, and his pall supported by six old ones; and very many old and respectable neighbours and tradesmen followed. The deceased has left a widow, four sons, and a daughter. The widow, and two sons, who have almost reached manhood, will carry on the business. — *H. I.*

Died, about the middle of 1832, at the house of his father, at Wandsworth, Surrey, *J. Nicolles*, for some years past flower-gardener to Roger Pettiward, Esq., of Great Finborough Hall, Suffolk. We are not informed of Mr. Nicolles's age, but, from once seeing him, believe it was about 30 years. Mr. Turner, of the botanic garden, Bury St. Edmunds, briefly notices (Vol. VII. p. 498.) the garden under Mr. Nicolles's management; and in Vol. VIII. p. 160. is a communication from Mr. Nicolles himself; and there is also another from him, in the *Magazine of Natural History*, Vol. IV. p. 449., consisting of a list of 46 species of birds, which he had collected in the neighbourhood of Finborough Hall, and preserved; and from the same communication we learn that Mr. Nicolles, at the time of making it, had also preserved some insects, and was then forming a *hortus siccus*. Mr. Turner, in a letter lying by us, dated April 15. 1832, thus speaks of Mr. Nicolles: —"I have just finished a note of introduction to you for Mr. Nicolles. Poor fellow! he has completely killed himself by intense study by night and hard work by day. I pity him sincerely: he is every thing I wish for in a friend. He is clever, he is persevering, and in his little person carries a great deal of knowledge. The garden and houses at Finborough do him great credit; he took great delight in having them neat, and by almost incessant labour he accomplished his object." — *J. D.*

THE

GARDENER'S MAGAZINE,

APRIL, 1833.

ORIGINAL COMMUNICATIONS.

Art. I. *Notes and Reflections made during a Tour through Part of France and Germany, in the Autumn of the Year* 1828. By the Conductor.

(*Continued from* Vol. VII. p. 264.)

Having completed the general results of our late British tour, before we recur to its details, we shall complete our Continental notes, made in 1828 and 1829; and, as the time is now so long gone by, we shall greatly shorten them.

In our last we were proceeding to examine the principal market-gardens, and had noticed those of Cadet de Mars, and the fig gardens at Argenteuil. We visited a great number of others in every direction in the neighbourhood of Paris, but we cannot now take time to describe them. We were much gratified by the cherry gardens in the Vale of Montmorency, over which we were conducted by Baron Hamelin, an enthusiastic collector of exotic bulbs. The cherry trees are thinly scattered over the surface; sometimes in rows, and sometimes irregularly; and on the ground are cultivated vines, and between these potatoes and other vegetables. The cultivation is careful, in point of stirring the soil and manuring it, but there is a want of regularity and neatness, which is probably owing to the entire absence of fences and of regular paths. Where deaths occur in the lines of vines, it does not appear that they are regularly filled up. An English artist admired the effect of this, as rendering the scenery most picturesque; of which, as a proof, he furnished us with a sketch, which we have had engraved. (*fig.* 20.) It may be very picturesque, but it is certainly not gardenesque.

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The best pine-apples which we saw in the market-gardens of Paris were those grown in pits by M. Decoufflé, M. Gallois, and M. Marie. The latter gardener takes the glass off his pits, night and day, during three months in summer; the leaves of the plants assume a rusty reddish hue in consequence, and they grow slowly, but they are much better able to stand the winter.

Mushrooms, in the neighbourhood of Paris, are cultivated deep under ground, in the caverns formed by the exhausted lime quarries. These quarries are not generally open to the day, as in Britain. They are worked more like coal-pits, and the stones are brought to the surface, up a cylindrical well or shaft, by means of windlasses, turned by large vertical wooden wheels. (*fig.* 21.) When the quarry is exhausted,

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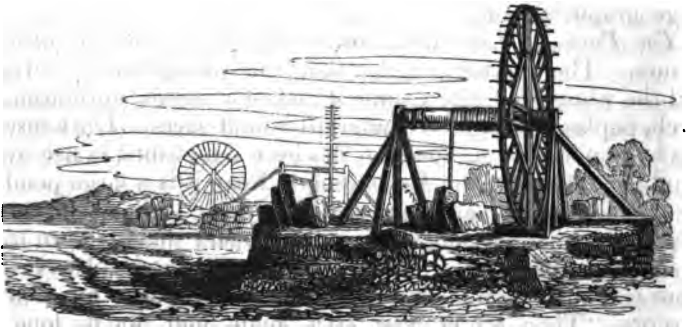

and the bottom is not springy, or liable to be filled with water, it is let to a mushroom-grower, who generally contrives to purchase a wheel and windlass that has become too frail to wind up stones, but which serves him as a means by which he descends and ascends; throwing down his stable dung, earth, and spawn; and managing them below much in the same way as in England. Mushrooms are also grown in cellars in Paris, and in market-gardens on the surface of the ground. There appear to be two distinct varieties of this fungus: one grown in very firm soil, the colour of which is of a whitish yellow; and the other, grown in very loose black rich soil and on dung ridges, which is of a small size and delicate white colour. We found both sorts in great perfection in the market-garden of M. Gallois, at the Abbaye Saint Antoine.

There are many points of practice in the horticulture of France which might be improved from the horticulture of other countries; and many in which other countries might derive improvement from France. In the forcing department, and in the culture of the pine-apple, the French have had little practice; and have consequently much to learn from the Dutch and the English, who have had a great deal. In the culture of salads during the winter, and in the growth of mushrooms throughout the year, the gardeners of Britain may learn a great deal from those of Paris. Fifty years ago, the pruning and training of fruit trees was better understood in France than in Great Britain; and we have nothing, even now, in the way of the culture of the vine in England, so simple and ingenious as the practice at Thomery. (See Vol. V. p. 287.) Perhaps, on the whole, considering the difficulties of climate to be overcome in France, the heat and drought in summer, and the great cold in winter, the French gardeners have more merit in producing or preserving the culinary vegetables at such seasons, in the open air, than those of Britain.

We shall now proceed to the villa gardens which we visited, and we shall take them in chronological rather than in geographical order.

The Park of Chantilly is of great extent, but of little beauty. The surface is nearly flat, the soil light and sandy, and the whole naturally a scattered forest of beech, hornbeam, birch, poplar, and other secondary deciduous trees. The house is a huge pile, which, however, has been diminished in size by the dilapidations of the Revolution. Near it is a large pond of artificial water, and a piece of ground laid out in the English manner Amongst the extraordinary things shown to strangers are the stables. These, the traveller Duppa observes, "are magnificent, and in the highest degree unfit for their purpose. They are at least 40 ft. high, and 600 ft. long, without accommodation for a bushel of corn, or a single truss of hay; in the centre is an octagonal room, 60 ft. in diameter, and 90 ft. in height. Here the prince used to dine once in the course of the hunting season, with a large party of his friends of the chase. The old garden has not been restored, but here is a modern garden, laid out like an English gentleman's pleasure-ground." This modern garden we found to be a low moist meadow, the grass nearly destroyed by the mole cricket; the buildings about the palace were in a most dilapidated state, and the immense platforms of sand, unshaded by a single tree, were any thing but country-like. Every thing indicated an immense outlay on an ungrateful situation. The only source of relief is the natural woods; though these, growing on a flat surface, and the soil being uniformly sand, contain little variety of either trees or plants. Taking the demesne of Chantilly altogether, it is fit only for growing copse, or for the Flanders husbandry, viz. turnips, wheat, and clover.

Ermenonville in October, 1828. — The property was then to be sold, and was let in the mean time to the Prince de Condé, who made no other use of it than as a preserve for game. The tower of the fair Gabrielle was roofless, and going fast to decay; some of the other garden structures were wanting; all were more or less dilapidated, with the exception of Rousseau's tomb in the Island of Poplars, and what is called "*La maison du Philosophe*" (*figs.* 22. and 23.), which is still pointed out to strangers as a place where Rousseau used to spend whole days, reposing on its heath benches (*fig.* 23. *a a*), having a fire of logs in the rude fireplace (*b*), and supplying himself with water from an adjoining spring. Bread and

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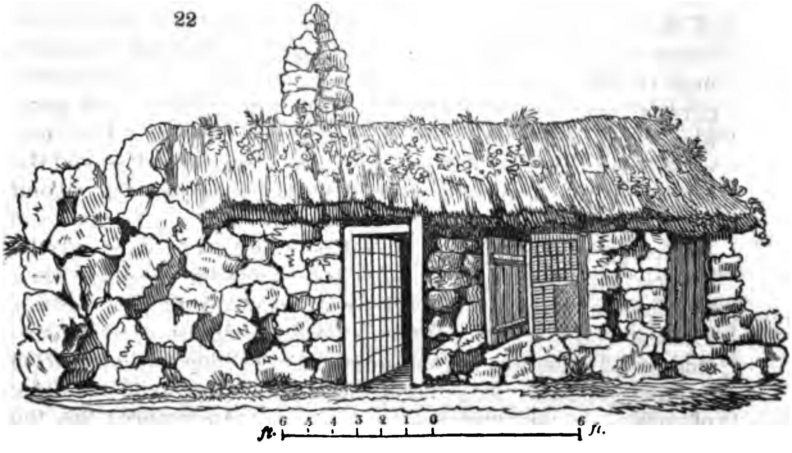

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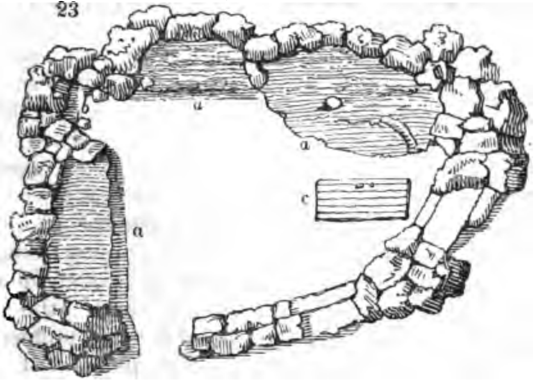

wine, we were told, the benevolent proprietor placed every morning in the cellar below, which Rousseau entered by a trap-door in the floor (*c*). The house in the village in which Rousseau lived, and the room in which he died, used to be shown to strangers: the room, we were told (in 1828), was become the sleeping-room of one of the Prince de Condé's gamekeepers. Ermenonville, having little or no natural beauty, and being now neglected by art, has ceased to be interesting otherwise than by historical associations.

The Grounds of Bagatelle, as laid out by Mr. Blaikie, are maintained in nearly their original state, and they form one of the most agreeable and successful imitations of the English manner in the neighbourhood of Paris. Through the kindness of M. la Pie, the geographer, at Paris, we obtained a correct plan (*fig.* 24.), which will give the reader a very good idea of the disposition of the principal masses. The only view beyond the boundary is obtained from the house and the other buildings; and this view is chiefly the Seine, and, beyond it, the hill Mount Valerian. The most un-English parts of Bagatelle are the house and offices: and, indeed, it may be observed, generally, that, with the exception of some recent buildings erected by the very first French architects, such as Durand and Percier, a French house is almost as easily distinguished from an English house, as a French garden is from an English one. In general, the faults of Bagatelle are those of most other English parks or gardens in France; viz. too much bustle and display, too many walks, too few trees and shrubs, and too many statues and seats, for the extent of surface. The result of all this is a want of shade, quiet, and repose. There is scarcely such a thing as a solitary, umbrageous garden walk in all France. The following are the details of the plan of Bagatelle : —

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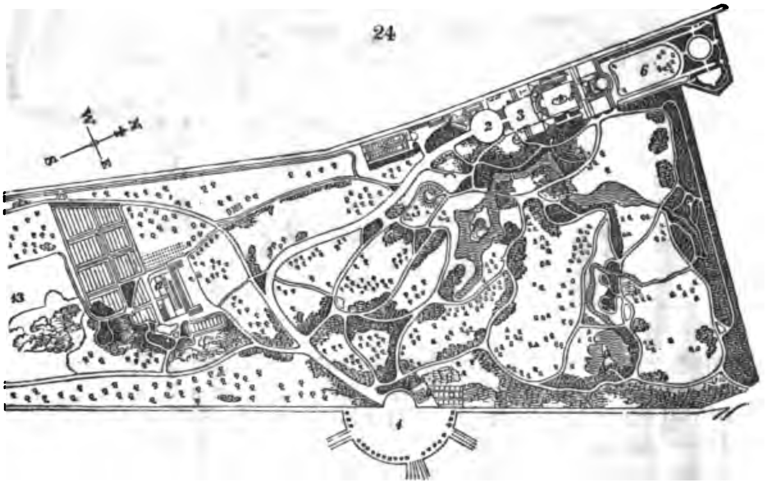

1, Main entrance from the Bois de Boulogne.
2, Outer entrance to the courts of the château.
3, Avant cour (second court).
4, Court of honour.
5, Main entrance to the château.
6, Bowling-green, surrounded by geometric garden.
7, Isle of the Tomb.
8, Elevated rock, on which is placed La Maison de Philosophe (philosopher's hut).
9, Rockwork, whence issues the water that supplies the lake.
10, Ice-house, over which is La Tour des Paladins (the tower of the Paladins).
11, Porter's lodge and garden.
12, Hot-houses, green-houses, and gardens.
13, Picturesque scenery in the park, which extends southwards to some distance.

The Park of St. Ouen (*fig.* 25.) was laid out by Gabriel Thouin for Madame de Cayla, soon after the restoration of Louis XVIII. The surface is flat; and very little is gained from the distant prospect; but, by great diversity of disposition in the trees and walks, a continual change of verdant scenery is presented to the spectator. The fault, to an English taste, is, that the wood is not in sufficiently large masses, and that there are too many walks. The result of these defects is a want of grandeur and repose. There are, however, two points, in the laying out of this garden, well deserving the attention of British landscape-gardeners: the first is, that the situation and turnings of every walk are accounted for, by trees or shrubbery, in the axils, so to speak, of their intersections; and the second, that great depth of interior view is given from all the principal points, by studiously avoiding to intercept the views by trees. In short, nothing in this plan of the Park of St. Ouen seems as if it could be otherwise than as it is; and this is always a good test. M. G. Thouin, though he has never been in England, and therefore cannot have a clear idea of what an English park is, yet lays out

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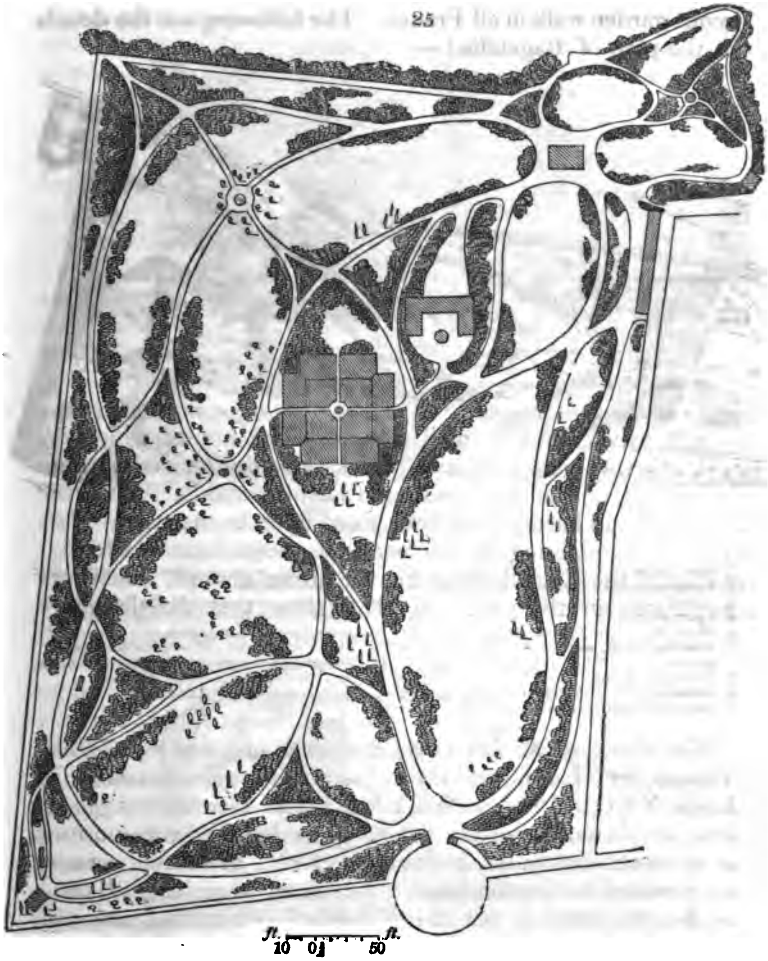

such parks, in France, on strictly scientific principles. The entrance lodge and iron gates to the Park of St. Ouen (*fig.* 26.) have a very elegant appearance, and a glimpse of the house is obtained from them, though it is at quite the other extremity of the park: a proof of how much the depth of perspective has been studied.

Villeneuve l'Etang, near Marne, was occupied before the Restoration by Marshal Soult, who is said to have been very much attached to it, and to have derived much pleasure from planting and altering the grounds. The park may contain upwards of 300 acres, which occupy two sides of a valley,

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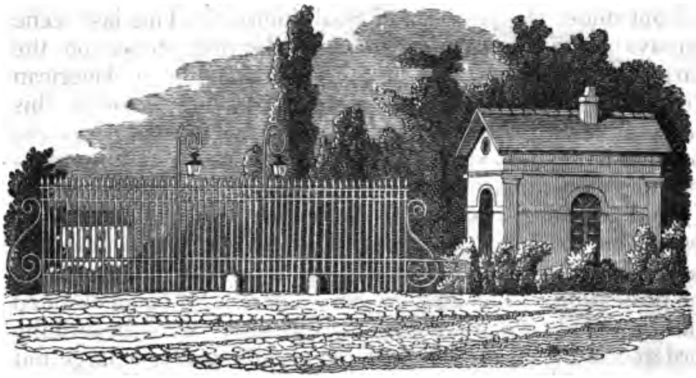

through which runs a small stream. The house, which is small, but with very extensive offices, is placed on the margin of the park, and in the lowest part of the grounds. A worse situation could hardly have been fixed upon in the whole 300 acres. The planting in the park has been done in what is considered the English style; but the formal clumps, which are conspicuous in the plan (*fig.* 27.), show that the designer

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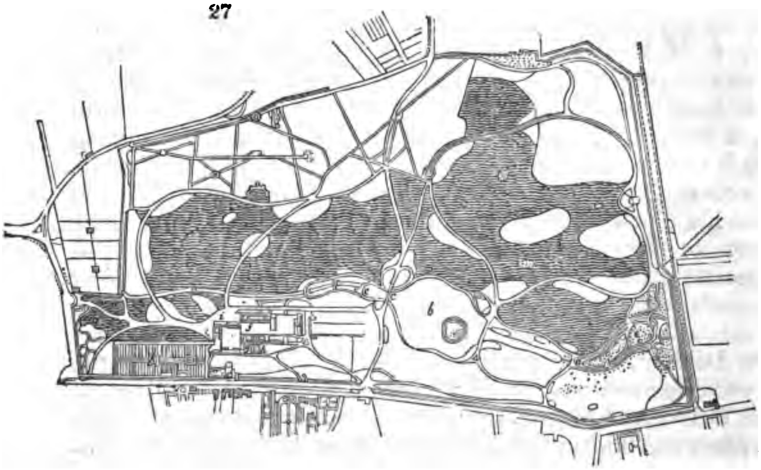

has considered that style any thing but an imitation of nature. The small stream of water (*a*) is made to spread out into a pond (*b*), and it is crossed by numerous bridges, under which are cascades (*c c c*). The only parts of the grounds which are tolerable, and which create in the mind any allusion to natural scenery, are, a flat bottom, varied by spruce firs (*d*);

a somewhat irregular piece of ground (*e*), said to have been laid out under the direction of Soult himself. This last scene displays some apparently natural rocks and stones on the margin of the stream, and contains some groups of American shrubs. The Duchess d'Augoulême, having coveted this place, obtained it with some difficulty from Soult; and she has the merit of having added to the house (*i*) a large conservatory and an aviary (*f*), and also a dairy establishment (*g*) and a poultry yard (*h*). Notwithstanding the duchess's desire for the place, we were (in 1828) informed that she passed only one night at it, during the whole time it was in her possession. The kitchen-garden here (*k*) is on an elevated platform, and, when we saw it, the walks were beautifully bordered with *I*bèris sempervìrens, which makes a large but very handsome edging. In some of the pits were a few finely grown pine-apples. Taken altogether, Villeneuve l'Etang affords an example of a situation highly favourable for the natural style, but mangled by a description of art without either the expression of purpose or the expression of style.

The Gardens and Pleasure-grounds of M. Doublat, at Epinal, have the reputation of being the finest specimen of English gardening in France. Their merits are great, though they depend more on the natural beauties of the situation, and on the surrounding scenery, than on the exercise of any style of art. M. Doublat's grounds consist of a rocky hill (*fig.* 28. *a*), rising abruptly from the town of Epinal to the height of 300 ft. or 400 ft., and stretching away to the east in the form of a narrow ridge, of a mile in length, gradually declining till it terminates in the vale of the Moselle. This hill and its continuous ridge bear a remarkable resemblance to those on which Edinburgh Castle and the Old Town are built. The town of Epinal (*b b*) embraces the hill on three sides; the Moselle passes through the town, and forms the northern boundary to the ridge; and a public road, accompanied by a small tributary stream, constitutes the western boundary. M. Doublat, the proprietor, a banker in Epinal, and the receiver-general for the department des Vosges, assisted by M. Grillot and his son, architects of Nancy and Epinal, began to plant and improve this demesne about 1793, and have continued doing so ever since. The great merit of the place, so far as art is concerned, is, that the planting is done in groups and masses, in which one species always prevails in one place; and in which the trees are disposed in a free natural-looking manner; and not in heavy, lumpish, formal shapes, as in some of M. Sckell's works in the English garden at Munich.

As leading Features of the Grounds at Epinal, we may direct

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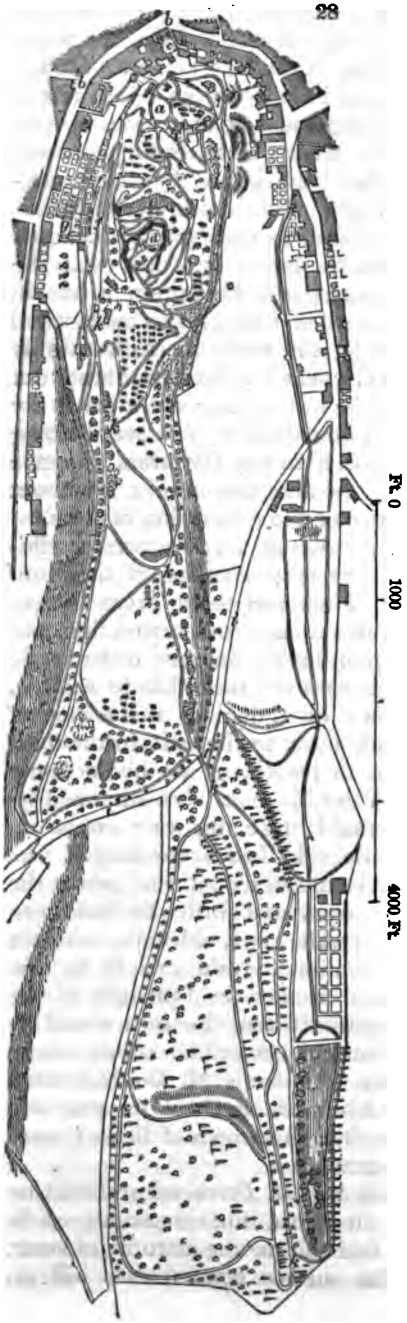

attention to the mansion (*c*); to the ruins of the castle of Epinal, on the highest part of the rock (*d*); to a large piece of water, formed adjoining what was formerly the moat of the castle, and including the moat (*e*) (this water, brought by pipes from a spring on a mountain some miles distant, can be rendered available to M. Doublat's house, and to the whole of the town of Epinal, at a moment's notice, in case of fire); to a succession of terraced walls planted with fruit trees and vines (*f*); to the terraced kitchen-garden (*g*); to the dairy, cow-houses and poultry yard, placed in the ravine, formerly a dry ditch for the defence of the castle (*h*); and finally, to the general variety in the direction of the walks and roads. In one part of the grounds, it will be observed that they are intersected by a public road (*i*); but the grand drive, which diplays all the main features of the place (*k*), passes over this road on a bridge (*l*). On tracing this drive in the figure, it will be found very ingeniously contrived for going and returning over the same bridges; and also for combining the greatest length with the greatest variety of line.

The most striking Feature, however, of the grounds at

Epinal, is the rock on which is scattered the remains of the ancient castle. The castle of Epinal was a place of great strength, till it underwent a siege, in the time of Louis XIV., when it was taken, blown up, and has since remained in ruins. Some of these masses are very large and entire, while others are shattered by perpendicular rents; and, leaning to one side, remain monuments of the tremendous force of gunpowder. It appears that the cannon balls made use of in the siege were partly formed of granite; as numbers of these, as well as of iron balls, are constantly dug up by the gardeners. The great inequality of the surface, and the various forms of the masses of rock round these ruins, with the distant amphitheatre of wooded hills and mountains on three sides, and the valley of the Moselle on the east, seen from them, constitute by far the finest part of the scenery. In our notes made on the spot in October, 1828, we find noticed two stupendous piers of the drawbridge, one rent from top to bottom, a height of nearly 100 ft., and leaning towards the other; immense masses of rock, beautifully varied with creepers, and more especially with the Ampelópsis *h*ederàcea; birch trees, larch, firs, and Scotch pines, protruding from crevices of the ruin and of the rock; a cleft or ravine with steep rocky sides, planted with larches, and having a Swiss air; a tunnel through the rock, of several yards in length, forming part of the road, and displaying a very striking view of the Moselle and its vale, from one end, and of one of the highest of the mountains of the Vosges on the other; and the imitation of natural woods, by planting very young trees among the older ones, always of the same sort in one place, so as very successfully to imitate the spruce fir forests of Prussia, the pine and birch forests of Sweden, and the larch and silver fir scenery of the Alps. The grand and savage character of the mountain scenery, on the one hand, as contrasted with the buildings and bustle of the town, and the vale of the Moselle, with its meadows and vineyards, on the other, add greatly to the charm of M. Doublat's grounds in our eyes; though, if the demesne belonged to an aristocratic Briton, the town would be deemed a nuisance, and the great object of all his efforts would be to plant it out from the view. So far is M. Doublat from entertaining any opinion of this kind, that his grounds are thrown open every Sunday to the whole town of Epinal; and at all times they are open to strangers.

The Villa, at Chantilly, of the late M. Berthoud, architect to the government in the time of the consulship, contains upwards of 100 acres, and has been laid out in the natural manner with extraordinary care. The surface consists of a hill or bank, in great part covered with natural wood; and of a hollow, with a small stream of water. The house is placed at one end of this hollow, close to Chantilly; and there is one short approach from the town, and another long one through the bank of natural wood, from a cross country road. This may be described as a double approach, there being one road for entering and advancing to the house, and another for returning. Both are admirably adapted for showing all the beauties of the place to the best advantage: a circumstance exceedingly favourable for the stranger, who, in order to see the place completely, requires to do nothing more than drive up to the house and drive back again. After passing through the gates at the lodge, and advancing about 100 yards, the stranger meets two roads, beside one of which is a post, with the words *chemin du hameau.* On returning from the house, at about the same, or perhaps rather a greater distance from it, the road divides in a similar manner; and close to one branch of it is a post, exhibiting the words, *chemin du départ.*

The House of M. Berthoud is in the Italian style; small, but richly ornamented. The principal view from it is along a valley, in which the eye catches, in succession, glimpses of water and buildings among trees and grass. In walking through this valley, the buildings, seats, urns, statues, and rockwork are found to be very numerous. Near the house is a rustic grotto, over which is a highly finished and richly furnished bed-room. A concealed door in the grotto leads to a small kitchen and other conveniences; so that this detached building seems to have been intended either to serve as an addition to the house, or as a lodging for a friend. Not far from this grotto, and also near the house, is a larger building, with the external character of a chapel. On entering, we found that the ground floor assumes this character, that the sunk story is a wine-cellar, and the room over a billiard-room. Hard by is an ice-house, disguised so as to appear a mass of rock, but partially covered with trees and bushes. A conspicuous object from the house is an obelisk, covered with hieroglyphics, and dedicated *aux arts.* The Chinese buildings, ornamental cottages, rustic buildings, and fanciful cattle-sheds and sheepcots, are too numerous to be recollected. The stables, the Chinese buildings, and also part of the exterior of the house, are painted in fresco externally; but, to an eye not accustomed to this style of ornament, this conveys the idea of superficial construction and temporary duration. The only building about the place which we could thoroughly approve of, was the entrance lodge. The usual defects of too great a width of gravel or sand in front of the house, and of rounding off too much of the angles of junction in the walks and roads, was less obvious at this place than in most others which we have seen in the neighbourhood of Paris; for example, Madame de Caylà's (see *fig.* 25.). When we saw this villa in 1828, the whole was in a state of dilapidation; but we have no doubt that, when it was in complete repair, it displayed much natural beauty, though with a greater mixture of architectural objects, and with less repose of effect, than harmonises with the British taste in landscape-gardening.

The Villa of Fromont, on the Seine—M. Soulange Bodin combines, at Fromont, an elegant villa residence with an exotic nursery, and an institution for young horticulturists. M. Soulange Bodin, like M. Vilmorin, is at once a skilful cultivator, a marchand grenetier (seedsman), a scholar, and an accomplished gentleman. As connected with the army, he has been all over Europe; and having been long (to use the Prince de Ligne's phrase) under the influence of the jardinomanie, wherever he went, the gardens were the main objects of his attention. At one time he had the principal management of the gardens of the Empress Joséphine at Malmaison. On M. Bodin's retirement to Fromont, in 1814, he commenced laying it out in the English manner, and so as to combine the picturesque scenery of the park with the profitable culture of the nursery. The grounds exceed a hundred acres of a surface gently varied, and sloping to the Seine. They are surrounded by a walk or drive, which displays varied views of the interior, the main feature of which is the château; and of the Seine, with some rising grounds, beyond the boundary. In various spaces among the groups of trees are formed beds of peat earth, in which seedlings of American shrubs are raised; the more rare kinds being propagated by artificial methods. In the walled garden near the house are numerous pits and frames, in which the more popular exotics, such as the orange, Caméll*ia*, Azàlea índica, and numerous other green-house and hot-house plants, are increased by hundreds. In effecting this, one of the principal modes employed is herbaceous grafting, or grafting on the young wood. The plants thus raised are sent to all countries. In the larger green-houses and hot-houses there is a collection of fine specimens, intended principally for ornament. The object of the institution for the instruction of young gardeners is, to supply French country gentlemen with young men well acquainted with both the practice and the theory of their art in all its branches. For this purpose there are professors, a library, a museum of implements and models, and a monthly journal, entitled *Annales Horticoles de Fromont.* There is not a more striking example, in all France, of the gentleman and the man of science being united with the tradesman than in M. Soulange Bodin; nor a villa in which more industry and activity goes hand in hand with picturesque beauty. There is nothing of the kind that we know of in England; nor can there be in the present state of things. It is, perhaps, one of the finest moral features in France, that most gentlemen are either manufacturers, tradesmen, or farmers; and that nearly all of the persons practising these professions are, in education and manners, gentlemen.

The Villa of Admiral Tchitchagoff, at Sceaux (*fig.* 29.) contains 15 or 20 acres, on a nearly flat surface; but it has been laid out with extraordinary care by the proprietor, aided by the constant advice of Mr. Blaikie. The object is, to compress as many as possible of those beauties of which a pleasure-ground is susceptible into a small space. The references to the plan will show how this has been done.

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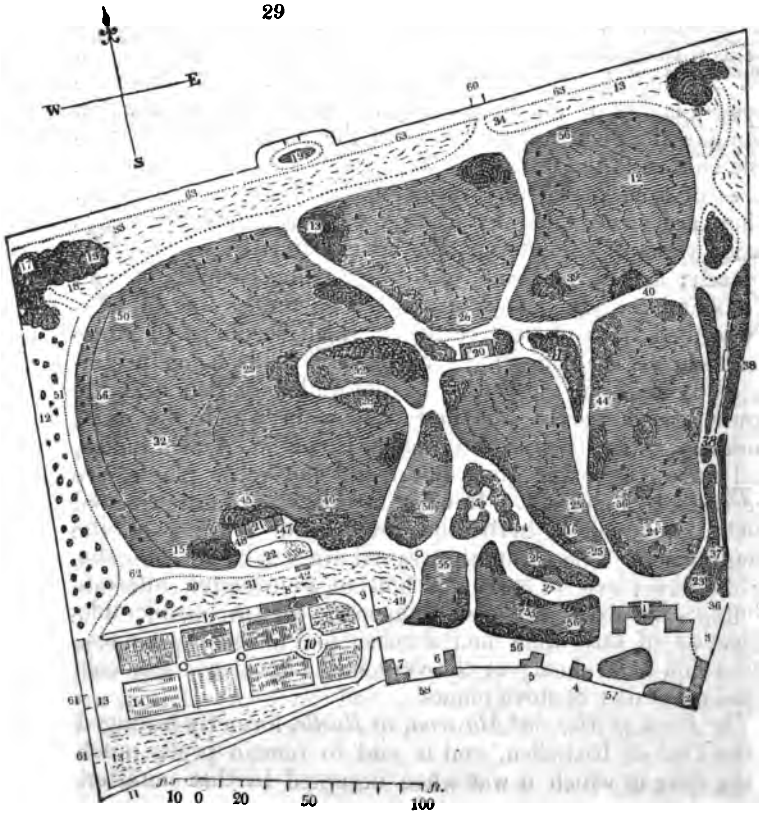

1, The house.
2, Stabling, cow-house, coach-house, dog-house, &c.
3, Poultry-yard, place for rabbits, Guinea pigs, &c., and dunghill, with hot-bed frames.
4, Porter's lodge, and dairy.
5, Pump and reservoir, from which leathern pipes conduct the water all over the grounds. in order to water the lawns, &c., in dry weather.
6, Gardener's house and office, pigeon-house, seed-room, &c.
7, Granaries, wash-house, and tool-house.
8, Pinery, and hot-houses for forcing culinary vegetables. 9, Fig-house.
10, Great basin surrounded by a flower-garden for florists' flowers.
11, Collections of biennials.
12, Foreign esculent vegetables.
13, Orchards for vines and peach trees.
14, Frames for forcing asparagus.
15, Aquarium. 16, Rockwork.
17, Bee-hives. 18, Rosary.
19, Flower-borders, and a horloge de flore (a clock of flowers).
20, Orangery. 21, Green-house.
22, Garden of variegated plants.
23, American garden.
24, Pelouse du nord (north lawn).
25, Magnolias.
26, Mount Lebanon, a collection of cedars, pines, and evergreens.
27, Conservatory of orange trees planted in the ground, with a roof removable in summer.
28, Cabinet de verdure (a bower).
29, Mount Echo. (Here there is an echo.)
30, Borders for duplicates; botanic grounds.
31, Herbaceous plants, and nursery.
32, Druidical ruin, containing bee-hives.
33, Vines trained à la Fontainebleau.
34, Vines trained in the Italian manner.
35, Embroidered parterre, laurels, experimental garden, and nursery.
36, Banc des paresseux (seat for idlers).
37, Banc tête à tête (seat for two).
38, Banc des solitaires (hermits' seat).
39, Banc des philosophes (philosophers' seat).
40, Banc des pleureurs (mourners' seat).
41, Banc Américain (American seat).
42, Banc de la Vérité (seat dedicated to Truth).
43, Banc des amateurs (amateurs' seat).
44, Baskets of *Sálvia spléndens*.
45 and 46, Groups of magnolias and other trees, surrounded by flowers.
47 and 48, Reading and breakfasting pavilions.
49, Banc bâti (alcove of masonry).
50, Grotto.
51, Banc des amis (seat dedicated to Friendship).
52, Choice fruit trees and esculent vegetables.
53, Salle de jeux (billiard-room, &c.).
54, Salle de danse (ball-room).
55, Pelouse de l'ouest (west lawn).
56, Shrubs and forest trees; pomegranate trees in the open ground.
57, Grande porte (principal gate).
58, Porte de charretier (gate for carts, &c.).
59, Petite porte, surnommée de la vache (small gate, called the cow-gate).
60, Porte du nord (north gate).
61, Porte de l'ouest (west gate).
62, Carrefour des six ifs (square of six yew trees).
63, A slip of outside ground, planted with osier.

The Mass in fig. 29., *in front of the House*, is thus arranged (*fig.* 30.): —

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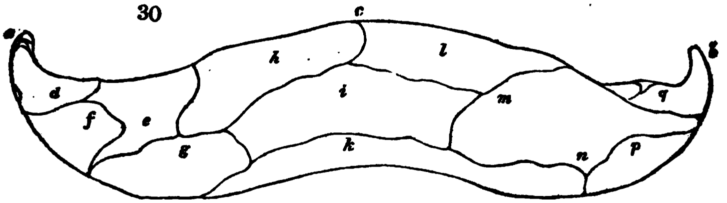

a, Pines. *b*, Cedars. *c*, Junipers, &c, *d*. *Malvàceæ*, *e*, Geraniums. *f*, Roses. *g*, Tuberoses. *h*, Pelargoniums. *i*, *Ligústrum*, Metrosidèros, and Bankàias. *k*, Jonquils, *Narcíssi*, crocuses, snowdrops, aconites, &c. *l*, *Cássia*. *m*, Camellias. *n*, Fritillarias. *o*, Tulips. *p*, Irises. *q*, Laurels, &c.

The Park of Neuilly is in a dull flat situation on the Seine. There is a small spot near the house, which bears considerable resemblance to an English pleasure-ground; but the rest of the place is very deficient in picturesque interest. There is, however, an arboretum, containing a considerable collection of rare trees and shrubs; and some hot-houses, into which the industry of the very skilful gardener has collected a number of stove plants.

The Park of Marshal Massena, at Ruelle, formerly belonged to the Duc de Richelieu, and is said to remain pretty much in the state in which it was when occupied by that minister.

It presents a tolerably complete specimen of the ancient style, but is much neglected.

The Park of M. Morel Vindé is delightfully situated on the side of a hill; and the château looks across a narrow park-like valley, to a well-wooded hill, on which is seen a part of the aqueduct of Marly. Looking from the house to the left, the winding of the valley conceals its termination; looking to the right, the valley opens into a level country richly cultivated, with hills and the château of St. Germain in the extreme distance. With every desirable feature for the exercise of the natural style, this place was laid out, many years ago, in the geometric manner; and the natural lines of an undulating surface, to a considerable extent from the house, are changed into levels and regular slopes, or counteracted by avenues, hedges, and straight canals. We do not know a finer subject to work on in the English manner, in the neighbourhood of Paris. M. Morel Vindé is an excellent agriculturist, and the author of by far the best work on rural architecture which has appeared in France.

The Château de Neuviller (*fig.* 31.) is situated on a commanding situation in the valley of the Moselle, between Nancy and Roville, and affords a specimen of a large French château of the time of Louis XIV. This château stands on an eminence, which protrudes boldly from the range of hills which skirt the north side of the valley. The summit of this eminence has been levelled, so as to form a platform of nearly two acres. About half an acre is occupied with the château and its different courts and offices, the remainder is laid out as a geometrical garden. The entrance is through a short

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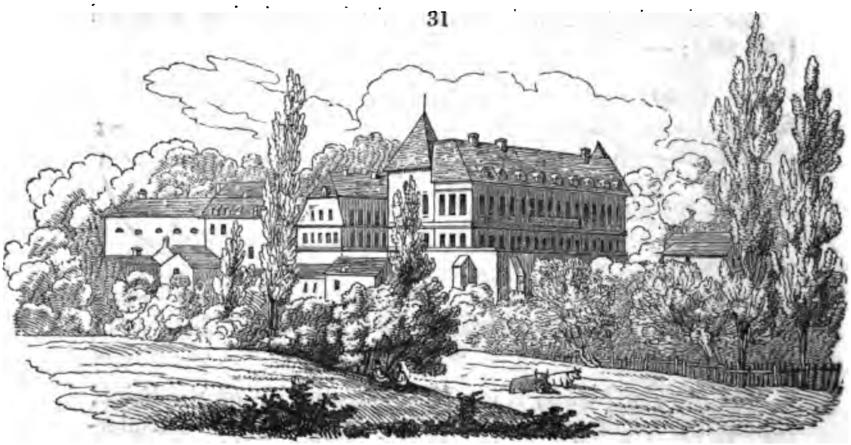

avenue from behind; the carriage of the visiter passes under an archway to the court of honour, and the stranger, entering the saloon, is struck with astonishment and delight at the magnificence of the prospect, which comprises the fertile valley of the Moselle, with its numerous villages, farm-houses, corn-fields, and vineyards, bounded by undulating hills covered with wood. The remains of terraced gardens, orchards, avenues, canals, and of all the component parts of a highly enriched geometric garden, still exist, though they have been utterly neglected for upwards of thirty years, and though the house was pillaged during the first excesses of the Revolution. At the base and on the sides of the knoll on which the château stands are the cottages which compose the village of Neuviller, and the public road; and we were told that it was the unjust acts perpetrated by the proprietor, in endeavouring to remove this village and road to a distance, which cost him his château, and ultimately his demesne. On looking over the numerous apartments, of spacious dimensions, on the ground floor, we found that a number of them had never been finished; and that very few of the bed-rooms were what in England would be considered habitable.

As Specimens of Town Gardens in Paris, we shall give the plan of the Elysée Bourbon, that of M. Boursault, and that of Bel Respiro.

The Garden of the Elysée Bourbon (*fig.* 32.) belongs to a palace of that name, and is situated in the Rue du Faubourg St. Honoré. It was laid out by the architect Bélanger, and contains a long glade of lawn (*a*); a straight covered walk (*b*); open winding walks (*c*); shady winding walks (*d*); a piece of water with an island (*e*); and a handsome terrace in front of the palace (*f*). As far as design is concerned, the ground is made the most of; but it was planted at a time when little regard was had, and as little opportunity afforded, for the introduction of American shrubs. We found this garden in excellent order.

The Garden of M. Boursault is situated in the Rue Blanche; and, for its size and situation, is one of the richest, not only in France, but in Europe. It contains less than two acres, and is surrounded on every side by high houses. The winter garden comprises a range of architectural conservatories, ornamented with columns of marble in the Corinthian order; another range of upright glass at an angle of nineteen degrees, as in Holland, and with opaque roofs containing rooms used for various garden purposes. At a time when gardening pursuits in France were confined to few, and when rare plants were only to be procured at an enormous expense, M. Bour-

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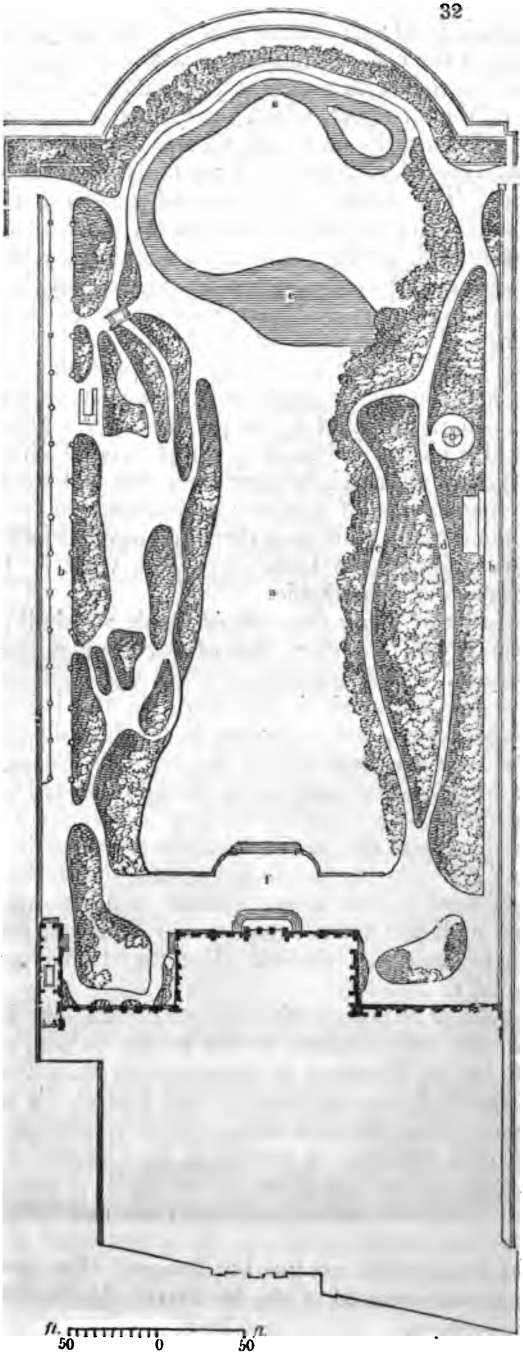

sault collected the most costly exotics to be found in Europe, notwithstanding all intercourse with Britain was prohibited. There are indeed here many fine specimens of plants, which, though they have been for some years familiar to British gardening, were, before the peace of 1815, not to be found in France beyond the precincts of M. Boursault's garden. We saw this garden in 1815, again in 1819, and again in 1828 and 1829; and always found it in the very highest order and keeping. Through the kindness of the proprietor, we have been favoured with the ground plan of this garden, and we employed an artist, in 1828, to take the two views *figs.* 33. and 34. The first of these views shows a large plant of *Araucària* excélsa, then thirty feet high; and the second, the style of the largest of the hot-houses. The ground plan (*fig.* 35.) was made for us by M. David, M. Boursault's very

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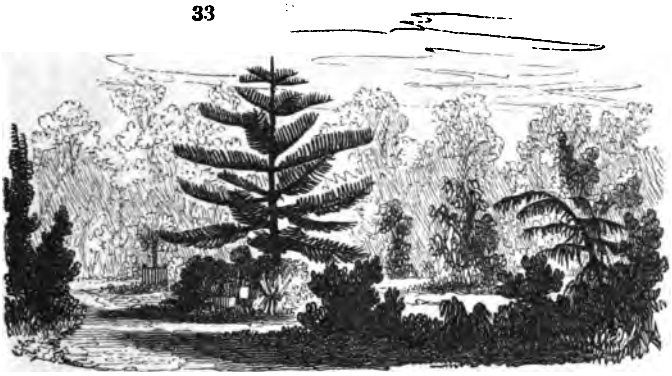

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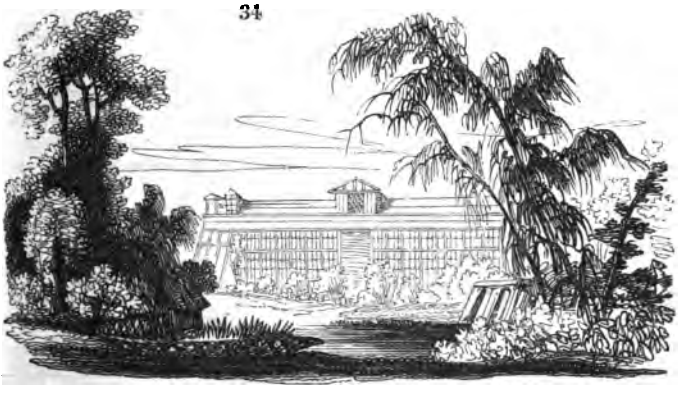

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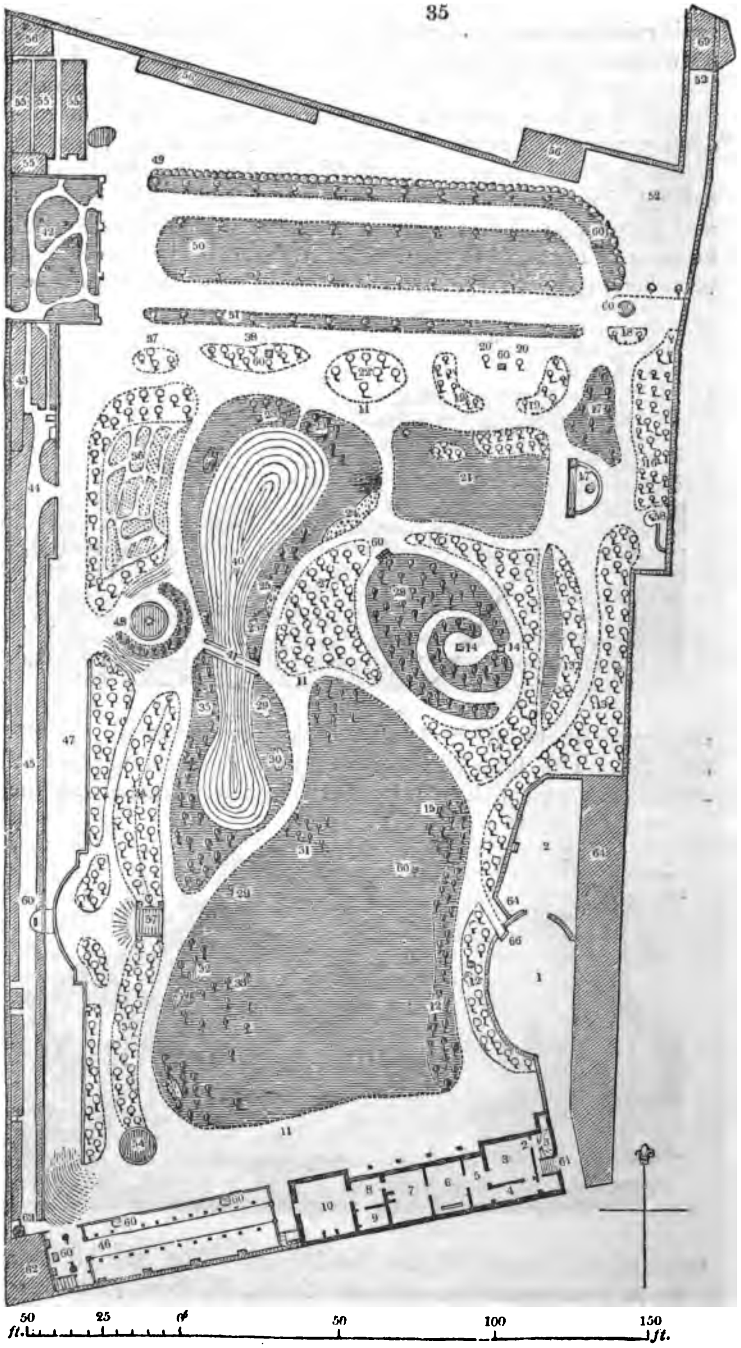

intelligent gardener, who also supplied us with a list of the principal trees. The following are the details of the plan: —

1, Principal court of the mansion.
2, Court of the stables and coach-houses. 3, Antechamber.
4, Corridor. 5, Waiting-room. 6, Small drawingroom.
7, Large drawingroom. 8, Vestibule for entering from the garden.
9, Bath-room. 10, Gallery of paintings, statues, and antiques.
11, *Open garden.* The walks are of gravel, and the turf is kept short by mowing, and carefully watered during summer.
12, 12, Masses of Magnòl*ia* grandiflòra, conspícua, and purpùrea. Kálm*ia* latifòlia and other species, Azàlea several species. *Pæònia Moútan*, edùlis, and other species.
13, Avenue chiefly of Magnòl*ia* grandiflòra, but with all the other species mixed, and numerous rhododendrons, azaleas, and other American plants.
14, 14, 14, Vase of white marble on the summit of a mount; on the side of which, surrounded by choice shrubs, is a group of georginas: near this is a handsome caryatic figure in marble.
15, Robín*ia* tortuòsa, *Æ*'sculus cárnea, and variegated hollies.
16, Place for camellias during the summer season.
17, 17, Semicircular marble bench, ascended by steps, and containing a handsome marble antique vase in the centre. Rhododendrons, andromedas, tulip trees, Calycánthus, Chimonánthus, *C*ydònia japónica, and various American shrubs.
18, 18, Exotics from the stoves and green-houses during summer; comprehending the coffee tree, *M*ýrtus *Piménta*, cinnamon, &c.
19, 19, Place for New Holland plants during the summer.
20, 20, and 21, Magnòl*ia* grandiflòra as standards, with a collection of all the rhododendrons which can be purchased in Europe as undergrowths; with select species of Magnòl*ia*, Azàlea, and other American plants, and *A*càcia *Julibríssin*, Gordòn*ia* pubéscens, &c.
22, *Araucària* excélsa, 30 ft. high, protected by a cover of boards during winter, and surrounded by a walk bordered with orange trees in summer. The *Araucària* (*fig.* 33.) is a very handsome tree, and the most conspicuous exotic in the garden.
23, Cedar of Lebanon, Photínia serrulàta, *Nandîna* doméstica, Eriobótrya japónica, *P*inus palústris, *A*cer nipalénsis (olivier de Bohème), *E*læágnus argéntea.
24, Bed of ranunculus. 25, Edwárds*ia* macrophýlla, 20 ft. high.
26, Pomegranates, and dwarf georginas.
27, Magnolias of various species, and of a large size; Virgíl*ia* lùtea, rhododendrons, and various species and varieties of holly. Cunninghàm*ia* lanceolàta, Salisbùr*ia* *a*diantifòlia, *Pæònia Moútan*, and many herbaceous sorts of pæony. Halès*ia* díptera.
28, Hill or mount of cedars, pines, firs, rhododendrons, hollies, and various evergreens.
29, *A*sclèpias tuberòsa. 30, Bed of select tulips.
31, Purple beech, silver lime tree, and gold-blotched alaternus. 32, Aviary.
33, Kölreutèr*ia* paniculàta, *P*ýrus spectábilis, and *B*étula péndula. Among these trees are beds filled with choice hyacinths in spring, and pelargoniums and other showy green-house plants in summer.
34, 34, Collection of standard roses, remarkably complete.
35, Handsome cedars of Lebanon.
36, Partie fantastique, devoted to the culture of bulbous-rooted florists flowers.
37 and 38, Pomegranates and georginas.

39, Choice collection of herbaceous plants.

40, Pond supplied from the canal d'Ourcq, by a perpetual fountain issuing through rockwork. Water lilies and other aquatics thrive here, and flower magnificently.

41, Iron bridge, with handsome palisades.

42, Conservatory, from which the roof is removed in summer, containing camellias of all sorts, E'pacris, *R*hododéndron arbòreum var. álbum and var. ferrugíneum, Azàlea índica and índica phœnícea; the cinnamon tree, which has here ripened its seeds, and young plants have stood the winter with very little protection. Magnòl*ia* fuscàta *anonæ*-fòlia, Wistàr*ia* Consequà*na*, and a number of other conservatory plants.

43, Stove containing Garcín*ia* *Mangostàna*, *Latània* borbónica and rùbra, a number of palms, the only *Dámmara* in France in 1828, Telfaír*ia* americàna, *C*ombrètum purpùreum [Poívre*a* coccínea] and comòsum [Poívre*a* comòsa]; Thunbérg*ia*, five species; *Mý*rtus, several species, and numerous bulbs.

44, Green-house.

45, Stove containing *C*aryòta mìtis, *C*. ùrens, *Cý*cas circinàlis, Córypha umbraculífera, *E*'late sylvéstris, *Pòthos* macrophýlla, *Arèca* montàna, Urània speciòsa (*Ravenàla* madagascariénsis), Theophrást*a* americàna, T. integrifòlia, Strelítz*ia* regìnæ, S. lanceolàta, S. *j*úncea, S. augústa, Dillèn*ia* speciòsa, *F*ìcus ferrugínea, *F*. *c*erasifórmis, *F*. speciòsa, and *Mý*rtus *Piménta* var. longifòlia, *A*ristolòchia labiòsa.

46, Green-house, with a row of marble statues on pedestals. Among the plants are, Beaufórt*ia* decussàta, Wistàr*ia* Consequà*na*, Lipària sphæ'rica, Mimòsa setàcea, suavèolens, semperflòrens, &c. Diósma suavèolens rùbra, Witsèn*ia* corymbòsa mìnor, E'pacris púngens álba, E. *r*òsea, Bursària spinòsa, Erythrìna herbàcea, E. *C*rísta gálli, Dorýanthes excélsa, Pimelèa *r*òsea, *O*'lea excélsa, *Yúcca* filamentòsa variegàta, Fúchs*ia* grácilis, *D*áphne Dauphín*ii* [hýbrida], *A*càcia lunàta, Camèll*ia* axillàris, *R*hododéndron arbòreum ferrugíneum.

47, Terrace walk, supported by a parapet wall, so as to be on a level with the glass.

48, Basin of water, with a statue of bronze in the centre, and surrounded by rockwork.

49, Lines of trees on turf. 50, Turf shaded by trees.

51, A row of trees on turf.

52 and 53, Back way for the gardeners and garden materials.

54, Basin of water, the bottom and sides of lead.

55, 55, 55, Stoves for pines, and for propagation (cuisine du jardinier, as M. Boursault calls it).

56, 56, 56, Houses and sheds for tools, garden materials, and in-door labours.

57, Stair leading towards the terrace. 58, Petite retraite.

59, Basin of water. 60, Pedestals for statues. 61, Main entrance.

62, Billiard-room. 63, Staircase to a small garden library.

64, Coach-houses and stables. 65, Lodgings for the gardeners.

66, Private entrance from the kitchen-court to the garden.

The House of Bel Respiro (*fig.* 36.) is situated close to the Barrière de l'Etoile, which forms the entrance to the grand avenue of the Champs Elysées, and is one of the handsomest of its kind in Paris; but the formation of a conspicuous wooden bridge (*fig.* 37.) in a situation without water greatly injures the expression of the whole garden. The object is a very laudable one, that of joining two high banks by a walk; but this ought to have been done by an inconspicuous rustic

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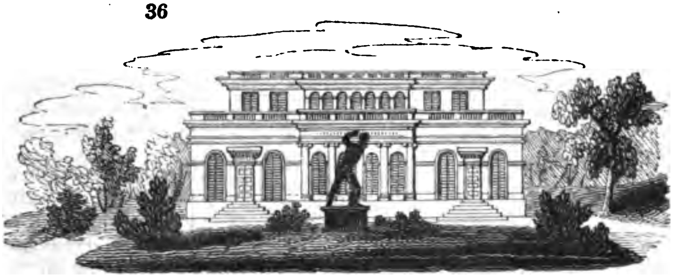

stone arch, concealed by creepers and wood. The groups of trees shown in this landscape are entirely artificial; and

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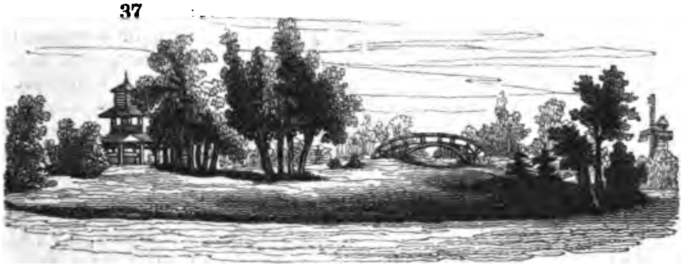

though the individuals are large, they were all planted in the spring of 1828. The building, to the left of the picture, is over the well and its machinery; the windmill, on the right, is beyond the boundary of the garden. This property was purchased, the house built, and the grounds laid out, entirely as a mercantile speculation, by a Parisian attorney.

The Garden of Bel Respiro (*fig.* 39.), like other town gardens, is surrounded by buildings. The surface is flat, and of no great extent; but the grounds have been laid out, from the proprietor's designs, with very great care, and at a very great expense. In the centre of the lawn, on the entrance front, is a bronze figure. (*fig.* 38.)

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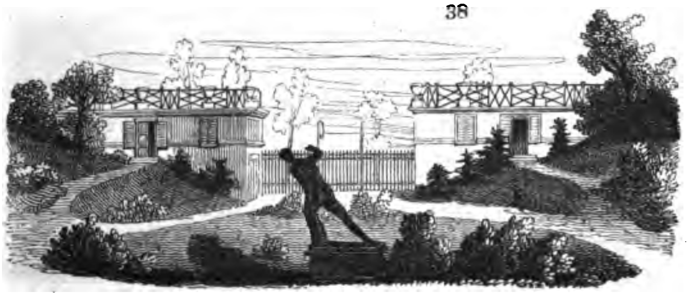

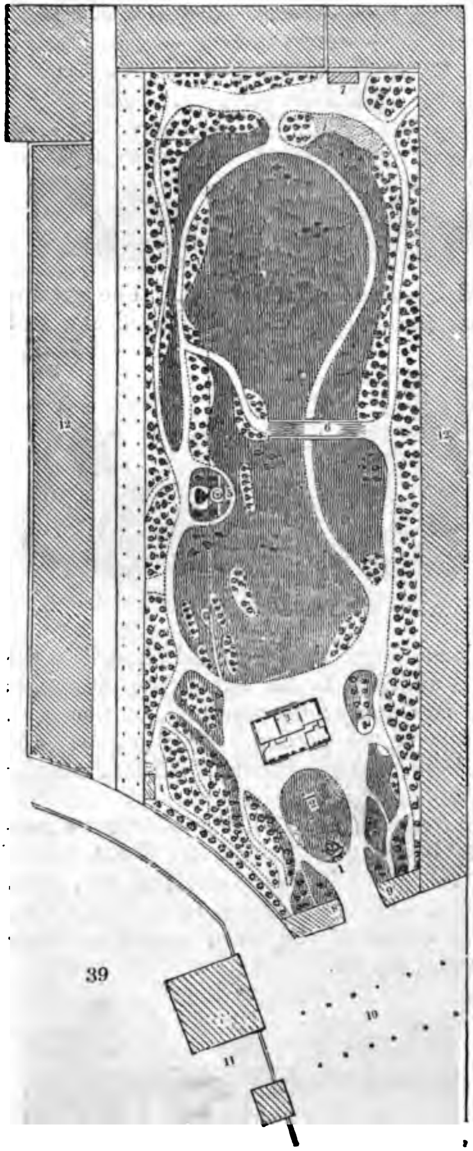

1, Rock, with a cascade of water; the water brought by tubes from a reservoir, and falling from the rock into a circular basin.

2, Bronze figure, in the centre of the grass plot, on the entrance front: it has a good effect looking through the iron gates from the street, and also looking from the house towards the iron gates, serving both to measure or increase the distance, and to enhance the interest of the scene.

3, House.

4, Volière (aviary).

5, Draw-well, with machinery for raising the water by a horse.

6, Wooden bridge.

7, Hot-house.

8 and 9, Lodge of the keeper, the roof of which forms a terrace, which is ascended from walks conducted on the high banks which surround the garden. These banks are planted so as completely to shut out the surrounding houses.

10, Avenue of the Champs Elysées.

11, Barrière de l'Etoile.

12, Street houses.

There are numerous small Town Gardens in Paris, and many houses have gardens of pots on their roofs. In a work entitled *Le Jardinier des Fenêtres*, the author directs how a considerable collection of plants may be grown on the roofs of houses. Not only botany, he says, but many of the operations of gardening, such as planting, sowing, grafting, striking by cuttings, pruning, training, &c., may be thus taught, so as to give persons who pass their youth in towns, in acquiring an independency, such a knowledge of country matters as may lead them to retire there, when the objects of their industry have been obtained. There are also town gardens entirely of an architectural character. One of the handsomest of these which we happened to see was that of a young architect, who unfortunately spent his whole fortune in creating it. The garden was in a dilapidated state; but the house (*fig.* 40.) was in tolerable repair.

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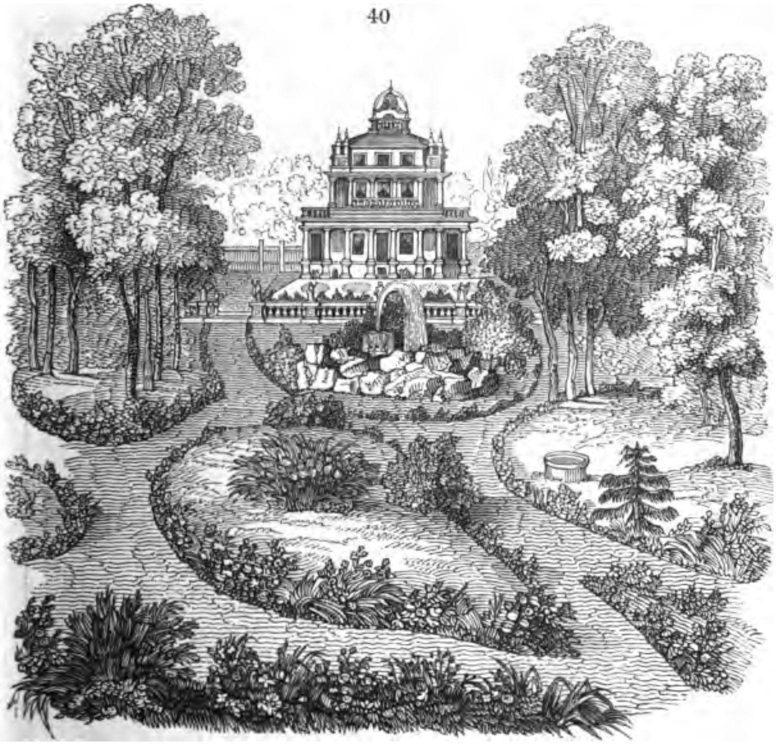

One of the most beautiful Villas in the Neighbourhood of Paris, as far as regards general scenery, and views beyond the boundary, is the park of M. Ternaux, at St. Ouen. (*fig.* 41.) The proprietor is well known as a manufacturer, an agriculturist, and an enlightened and philanthropic man. He is highly esteemed by us, not only as a man of taste, but

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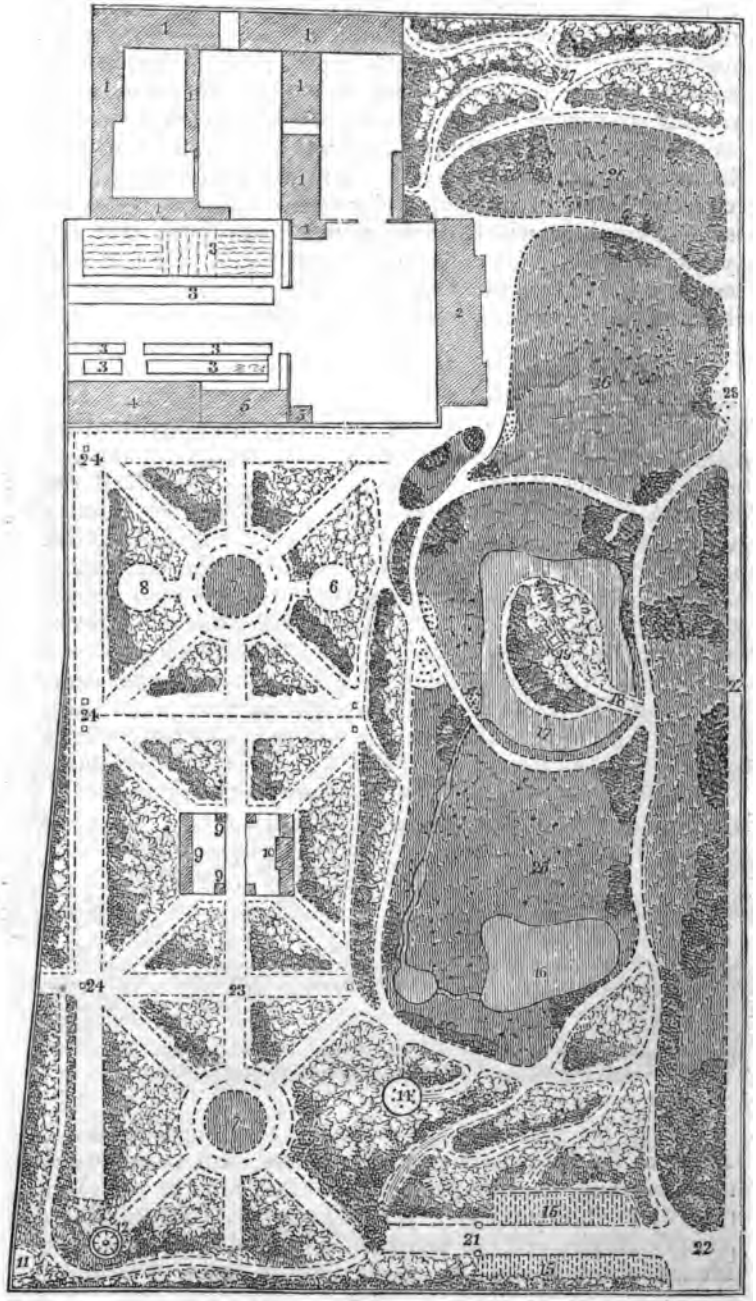
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as one of the warmest advocates for universal education in France. His park is not large, and contains little variety of surface; but it is situated on the high bank of the Seine, where that river makes one of its most beautiful bends; and this, with the great extent of varied scenery beyond, is seen to admirable advantage from M. Ternaux's house and grounds. The chief merit of the place consists in the adaptation of the scenery within the boundary, to the most beautiful parts of that which lies beyond it; and more especially to the finest parts of the river. For the latter purpose, M. Ternaux has formed two pieces of water (16 and 17), which harmonise with the river, in a manner so striking, as to make it difficult to convey by description a clear idea of the effect produced. This striking and harmonious effect was the more difficult to obtain, from the river being there upwards of fifty feet below the surface of the garden. M. Ternaux, however, fixed on a glimpse of the river caught in the distance, and by the two ponds before mentioned (16 and 17), between which and the distant water the eye does not meet with the slightest interruption, not even grass or gravel, the distant reach is in effect brought home to the drawingroom windows. To understand how this is done, it is necessary to know that the pond nearest the eye (17) is full to the brim, and from the house (2) carries on the eye to the farther pond (16), which, being higher than all the trees between it and the boundary, and at the same time brimful, connects it in perspective with the distant reach of the river. The merit of this arrangement belongs entirely to M. Ternaux, who had no professional assistance whatever. The following are the details of the plan: —

1, Manufactory, storehouses, workshops, stables, and other offices and lodgings for the overseers.
2, Mansion. 3, Kitchen-garden. 4, Orangery. 5, Stove.
6, Place for the cheval de bois (roundabout).
7, 7, Platforms of turf, surrounded by lime trees, clipped architecturally, forming airy shady walks.
8, Place for the balançoire (swing).
9, Bergerie (sheep-houses). M. Ternaux has a large flock of merinos, which are housed here every night throughout the year; and every day, when the ground is not covered with snow, or the rain is not excessive, they are taken out, to feed upon, and walk over, an extensive tract of common field land, so as to imitate the treatment they receive in Spain. There is also a flock of Cachemire goats lodged with the sheep, and treated like them. M. Ternaux manufactured the finest cloth from the wool of the sheep, and Cachemire shawls from the hair of the goats. The flock of goats and the shawl manufactory have, we believe, subsequently been given up.
10, Sheep-house, with dovecot over. 11, Moss-house.
12, Rustic temple. 13, Rock, with an archway and walk underneath.
14, Chinese temple. 15, Parterres.
16 and 17, Ponds connected by a rivulet. 18, Bridge.

19, Rockwork and rustic seat.
20, Artificial spring and rocks. The water that enters by this spring comes from the manufactory (1), to which it is raised from the Seine for various useful purposes.
21, Two Doric columns, surmounted by marble statues.
22, Terrace walk supported by a lofty wall, near the base of which is the Seine. From this terrace magnificent views are obtained.
23, Avenues, chiefly of horsechestnuts, clipped so as to form columns joined by arches. The soil being dry and gravelly, the trees are very prolific in nuts, which were eaten greedily by the goats, as well as the leaves of the chestnut and other trees, when properly dried, and stacked up for winter use.
24, Statues on pedestals.
25, Lawn sprinkled with shrubs in the natural manner, sloping from 17 to 16.
26, Elevated lawns, planted in the natural manner, and kept verdant and close in summer by nightly waterings.
27, Shady winding walks à l'Anglaise.
28, Point shaded by trees, from underneath which the master-views of the place are obtained.

There are several small Villas in the Neighbourhood of Scéaux worthy of notice. All these, as well as the public garden of that place, were formed out of the park of Penthièvres. Next in interest to the grounds of Admiral Tchitchagoff are those of M. Vandermarcq: the former depends chiefly on art, the latter on nature. It consists of twenty or thirty acres, with considerable diversity of surface. It was laid out during the consulate, for Mademoiselle Mars, the celebrated actress, by the architect Berthoud, who laid out Malmaison. The place is not without considerable beauties, but it is deficient in small groups; and, when we saw it, it was, like most other French villas, very badly kept. The villa of the Countess de Bruce is chiefly remarkable for its green-houses and its exotics; that of M. Comte for the architectural remains of the palace of Penthièvres; and that of M. Sartoris is a good deal in the English manner.

The Natural, or English, Style of Landscape-Gardening is neither generally understood nor duly appreciated in France; chiefly, we believe, because the whole kingdom, as far as we have either heard or observed, does not contain a single good example. There is no want of romantic scenery in various districts; but there is almost every where a want of close green turf, of evergreen shrubs, and of good adhesive gravel. These natural defects are aggravated, rather than concealed, by the excess of art; by too many walks; by too many seats and buildings; and by too meagre a distribution of trees and evergreen shrubs. The defects of nature can never be altogether overcome; more especially the want of dark green turf; but we do not object to sanded instead of gravel walks, provided they have not deep harsh edges, and are neither too numerous nor too perpetually serpentining, without real or apparent cause. In general, the walks, in Continental imitations of the English manner of laying out grounds, are too close together, and so much alike in their lines of direction, that, in flat grounds more especially, the effect is monotonous. In the park of Madame Cayla (*fig.* 25.), which is on an even surface, and sparingly though scientifically sprinkled with wood, the multiplicity of walks which every where meet the eye of the spectator destroys alike grandeur, richness, and repose. On hilly surfaces, like that of the park of M. Doublat (*fig.* 28.), a greater number of walks in proportion to the actual extent of surface is admissible than on levels; because both the quantity of surface and of wood appear much greater than they really are. The cause of this appearance is, that a rising surface presents a larger angle to the eye than a level one. What aggravates the faults of English gardens in France is, the very slovenly manner in which they are generally kept; extent there, as in England, being more the object of ambition than excellence. There are, however, exceptions, both in regard to the knowledge of the principles of landscape-gardening and the want of order and keeping; and it gives us the greatest pleasure, to be able to state our conviction that there are no men, in any country, more thoroughly imbued with the science and spirit of the art of laying out grounds in the natural, or English, style than M. Soulange Bodin and M. Gabriel Thouin; nor any places in England more neatly kept than Fromont, Radepont, M. Boursault's garden at Paris, M. Ternaux's at St. Ouen, and that of Admiral Tchitchagoff, at Sceaux, were, when we saw them in 1828.

The Improvement of Landscape-Gardening in France will proceed rapidly in connection with other improvements; and, above all things, when France and Britain shall be so far assimilated in the price of the necessaries of life as to admit of the gardeners and amateurs of both countries visiting each other; not, as at present, for a few days or weeks, confined to the neighbourhood of London, or the neighbourhood of Paris; but for months or years, to be spent in visiting the finest gardens in the provinces. The turf of France might be very much improved by employing a proper selection of grasses, and by previously cultivating and manuring the soil: improved, indeed, to an extent that few could believe who have not seen the effect produced by the mixture of grass seeds for lawns used by Mr. Sinclair in England, and by M. Vilmorin in France. If the two particulars we have mentioned were attended to, the lawns would be much thicker and closer, and they would by that means retain more moisture in the soil, so as to continue growing, and consequently green, during summer. The same selection of grasses will insure a uniformity of growth in lawns and pastures, instead of that coarseness and tuftiness which is now almost every where common in lawns on dry soils. The recent invention of a mowing machine, which operates better on dry grass than on a moist surface, will also contribute greatly to the improvement of the lawns in France, and in other countries with very dry warm summers; more especially when this machine shall be so much enlarged and improved as to be worked by a horse. The sands and gravels of France are generally loose, and very disagreeable to work on: by mixing the gravels with burnt clay pulverised, or the sands with tar, or any oily or greasy matter, they will become hard, so as not to require that continual hoeing and raking which, in their present state, renders them more like ground newly sown with seeds than paths for walking on. Evergreen shrubs do not thrive very well in France, from the great severity of the winters; it is surprising how few there are in the natural woods every where; and the gardens in the neighbourhood of Paris present a dreary appearance during several months every year, for want of what contributes so much to the beauty of those in the neighbourhood of London during the same season. This defect may be remedied by the more free use of the hardier evergreens, such as box, yew, holly, juniper, common and Portugal laurel, butcher's broom, ivy, &c.: of the rapid-growing evergreens, such as the *U'lex Spártium*, &c. (which, if they are easily killed by frost, are easily renewed from seed), and by planting the more tender American evergreens, as rhododendrons, kalmias, vacciniums, &c., under the protection of deciduous trees, in the manner of undergrowths to them. In short, though we cannot altogether agree with the patriotic sentiment of our excellent friend Soulange Bodin (*Annales de Fromont*, tom. iii. p. 96.), in his assertion that France is pre-eminently the country of landscape-gardening, yet we are confident that there is no defect in that country, either natural or artificial, which may not be greatly mitigated, if not entirely removed, by the resources of art.

The Improvement which an English Landscape-Gardener may derive from studying the state of his art in France is greater than might at first sight appear. By observing the exaggeration of either beauties or deformities, the causes of the pleasure or the dislike that they excite are more easily discovered; and consequently our resources for enlarging the one or diminishing the other increased. Moderation in the use of walks is a lesson taught by almost every French garden; and not less so the use of depth of perspective in most views, whether limited to the interior, or extending across the boundary. In general, all that leads an artist to recognise and appreciate the minds of others in their works, has a tendency to lead him to infuse a superiority of mind into his own.

In our next we shall take the gardens of Baden, and afterwards those of Bavaria and Wirtemberg, which will complete our notes.

(*To be continued.*)

ART. II. *A few Remarks on the State of Gardening in Lower Canada, and particularly in the Neighbourhood of Montreal.* By A. P. HART, Esq., Barrister at Law, of Montreal, Lower Canada, Fellow Mont. Nat. Hist. Soc. &c.

Sir,

ON perusing, this morning, the 39th number of your invaluable magazine (Vol. VIII. p. 385.), I could not avoid reproaching my friend and client, Mr. Robert Cleghorn, one of our most respectable nurserymen here, and the proprietor of Blinkbonny Garden, near this city, for his laziness in allowing 39 numbers of the Gardener's Magazine to be published, without contributing a single communication to it. To show you that at least in Montreal we do not altogether neglect horticulture, I threatened that if he did not bestir himself I should be in the field before him; and being confined to my bed-room, of which I have been an inmate from illness for a month back, I this evening thought that I could not better employ my time than in giving you a slight sketch of the state of horticulture in Lower Canada, and particularly in the neighbourhood of Montreal, trusting that it may not prove altogether uninteresting to your readers.

Horticulture, far from being neglected, is very much attended to, in Lower Canada, and particularly in Montreal; and no better proof can be adduced than our supporting three or four large nurseries. It is true that we cannot exhibit the gardens of private individuals containing ranges of hot-houses, conservatories, &c., which cannot be supposed to be common in a young country; but we have our miniature villas and gardens, which, though not of great extent, still contain varieties of fruits, of flowers, and every species of culinary vegetable.

It has been very erroneously supposed, that, owing to the shortness of our summers, and the extreme length and cold of our winters, few fruits will ripen with us: but quite the contrary is the fact. The frequent and warm rains of April and May, and the very intense heat of our summer which succeeds, cause so rapid a course of vegetation, that many fruits ripen here in the open air, and as standards, which can only be matured in England and the north of France as espaliers, or by the assistance of artificial heat: we only require hot-houses for the purpose of ripening or forcing tropical fruits, and fruits in winter. There is hardly an exotic which we cannot bring into full flower in our dwelling-houses, where we are obliged in winter to keep up a great degree of heat. Should we wish to possess any extensive assortment, of course a hot-house would be required.

The following are the Montreal nurseries and gardens:—

Blinkbonny Garden, situate at Côte à Baron, owned and carried on by Mr. Robert Cleghorn, is the oldest and decidedly the most respectable establishment of the kind in Montreal. Mr. Cleghorn has paid great attention to the introduction and cultivation of fruit trees, of which great numbers are disposed of annually by him: his trees are always healthy and good-looking; and, as I am in the constant habit of frequenting his garden, in which I may call myself a privileged man, I can testify as to its neatness and order. No catalogue has been published from Blinkbonny for some years; but, from my own knowledge, Mr. Cleghorn cultivates and has for sale about thirty good kinds of apples, about fifteen or eighteen kinds of pear, about as many kinds of plum, four or five kinds of cherry, as many of grape, about six or eight kinds of gooseberry, besides other fruits, and a large collection of perennial, herbaceous, and green-house plants; among which I must notice his collection of ericas and aloes. Blinkbonny exhibits also an extensive collection of indigenous plants and trees.

Donnellan's Garden stands next to Blinkbonny; and though my Hibernian friend Donnellan and I may differ a little in our political way of thinking, we agree perfectly in our ideas of gardening; and I must do Donnellan the justice to say that he possesses a most capital and promising nursery; and his addition of a green-house to his establishment (I omitted to state there is one at Blinkbonny), heated by flues in winter, and present collection of green-house plants, bid fair to make us rich in the introduction of new exotics. Mr. Donnellan has a fine collection of carnations, which he is successful in raising from seed, and in propagating from pipings, though I prefer the system (which I always follow) of layering (*margotter*, as the Canadians call it). Mr. Donnellan is also a market-gardener.

The New Road, or Papineau Road, Nursery is the next in rank as a nursery, and is the property of an honest industrious man, Mr. M'Kenzie. His garden contains a very large assortment of fruit trees; and I trust that, ere many years are past, the blunt but open-hearted proprietor of the Papineau Road Nursery will be the owner of a much larger establishment. Mr. M'Kenzie does a great deal in the market-garden way.

The Montreal Botanic Garden is the next in rank, as being the latest established, and, though last, by no means least. On this garden I can dwell with pleasure, as it is the first instance of a French Canadian (Canadian of French extraction) embracing the profession of a nursery and seedsman. It is conducted by S. Guilbault and Co., and has only been in operation about twelve months. Mr. Guilbault is a promising and industrious young man; and, though he has not received a botanical education, he is striving hard, by intense study, to attain a perfect knowledge of his profession; and I can give you no better description of his garden than by sending you his catalogue, which you will find contains 327 kinds of green-house plants, 88 kinds of ornamental trees, evergreens, &c., besides a large collection of fruits, &c. It may be necessary, in justice to the other nurserymen, to state that this catalogue contains numbers of plants and trees, of which Mr. Guilbault has only single specimens, and will not, therefore, be ready for sale for a couple of years: in this state are at least two thirds of his green-house plants, and as many of his perennial herbaceous plants. S. Guilbault and Co. have erected a very capital green-house in the botanic garden.

There are one or two other nurseries, but not of sufficient note or extent to require separate descriptions.

In Quebec, horticulture has latterly become very much attended to, and numbers of beautiful and picturesque situations have been laid out in gardens, in which very beautiful country seats have been erected. In climate, Quebec is very different to Montreal, the high grounds about the former city being more exposed to cold sea breezes than the level ground of the country of Montreal. I will at a future period give you a distinct account of the Quebec gardens and country seats, accompanied with, perhaps, two or three sketches of the most picturesque situations, particularly the country seat of William Atkinson, Esq., at Carouye, near Quebec. The scenery about Quebec, being perfectly sublime, deserves a distinct article.

And now a few words as to horticulture, and horticulture among amateurs, in Montreal. In the first place, the lower order of French Canadians are very fond of flowers, particularly those residing in town, and in winter they succeed remarkably well in blooming their plants, owing to the extreme heat kept up in their houses by means of the stoves in use in this country. It is by no means an uncommon sight, in passing through the suburbs of this town in winter, to see a dozen or twenty Canadian houses, in fact almost every house that is inhabited by a French Canadian, with the front windows decorated with roses, carnations, and pelargoniums (particularly the countess seedling and pine-apple pelargoniums), in full bloom, and flowering in a style that would not disgrace the most scientific gardener. Their gardens (each generally of a small plot of ground adjoining the house, in which they raise their culinary vegetables) are in summer generally graced with a few showy hollyhocks and roses, particularly the cabbage rose, together with the large crimson pæony, and perhaps a few plants of bachelor's buttons, and a few annual flowers. Two things are always found in Jean Baptiste's garden, — a lilac tree in one corner of it, and the flower borders full of mignonette. Latterly the Canadians are becoming more fond of fruit trees, though those who could afford them always had one or two in their gardens. As to the gardens of the better-conditioned order of French Canadians, and of the English residents, they are generally very well cultivated, and contain several varieties of the apple, pear, cherry, plum, grape, and gooseberry, together with white, black, and red raspberries, and white, red, and black currants, alpine strawberries, and sometimes the pine-apple strawberry; the grapes most commonly grown seem to be the sweetwater and blue cluster. Among the larger and most highly cultivated gardens are those of John Molson, sen. Esq., the Hon. John Forsyth, John Molson, jun. Esq., H. Corse, Esq. (of whom more anon), James Leslie, Esq., —— Leprohon, Esq., B. Holmes, Esq., Jacob Dewitt, Esq., and many others. In the garden of Mr. Molson, sen., there is a great variety of fruits of such kinds as the peach, apricot, nectarine, apple, pear, plum, cherry, and grape. Mr. Molson has also a Canadian arboretum, and his garden is extremely well attended to by a very deserving man, James M'Millan, for some years gardener to J. S. M'Coul, Esq. In the various gardens above mentioned are cultivated the following kinds of apples: — Fameuse, Pomme grise, Bourassa, Reinette du Canada, all Canadian apples (the Bourassa dying off very fast. Why? It is said to be because the original tree lasts only a certain length of time, at the termination of which period even the young trees inoculated from it die off!); Calvilles of kinds, Early harvest, Garden pippin, Nonpareil, Carse of Gowrie, Irish codling, Blinkbonny seedling, Juneating, and several other kinds. In my father's garden are the Smith's and Æsopus Spitzemberg, and the Rhode Island greening, and Newton pippin, all excellent apples. Of pears the following kinds: — Summer and Winter bonchrétien. Doyenne blanche, Cuisse madame, Vargalien, Beurré, and Seckle. Of plums, the Bulmer Washington; purple, white, and yellow egg plums; white and green gages, large Orleans, Bingham plum, and Prince's white gage. The only kinds of cherry which succeed here are, the Kentish, Cluster, and Early mayduke. The grapes most commonly cultivated are, the White sweetwater, and Blue cluster, or Black Hamburgh; but in almost all the above gardens are the White chasselas and the Wellington, a very large and fine grape; also the Portugal grape: we have also the Isabella grape cultivated, which is an indigenous grape; and I saw in the market, exhibited as a show by Mr. Leprohon from his garden, two or three bunches of the Isabella, each from 14 to 16 in. long, and about 4 or 5 in. broad at the broadest. I will obtain from Leprohon the weight of the largest bunch, and let you know it. The strawberries cultivated in the gardens of the most wealthy inhabitants, and in those of amateurs, are, the Alpines, Devonshire, Chili, Pine-apple, and by one or two (being just introduced) Wilmot's superb. The gooseberries cultivated are generally the Top sawyer, Whitesmith, Rockwood, Crown Bob, General de Rottenberg (a seedling named after a governor of the province). These are the fruits most generally introduced by the above gentlemen.

With regard to floriculture, we have very fine beds of tulips, ranunculuses, anemones, auriculas, polyanthuses; in fact, of all florists' flowers; a great variety of herbaceous plants. Dahlias (or georginas, as they are more correctly termed) have been but lately introduced; and my father (Benjamin Hart, Esq.) can boast of the best collection of them, more than twenty of the finest double dwarf and tall kinds having flowered in most splendid style at his garden (Beaulieu, near Blinkbonny), and among them Coccínea máxima, King of the Whites, King David, Purpùrea, Countess of Liverpool, Beauté d'Angleterre, Golden yellow, and Spectábilis (anemone-flowered). The whole collection was a present from —— Briscoe, Esq., of Firtree Grove, near Dudley. The exotics cultivated are generally pelargoniums, of about 40 kinds; camellias, 10 or 12 kinds, including the Chándler*i*, only one of which is in Montreal, one which I imported from Messrs. Chandler's having died; aloes, ericas, cactuses (particularly the speciosíssima), Crássulæ, Hóy*a*, *H*eliotròpium, Justíc*ia*. Lobèl*ia* fúlgens and splĕndens, *J*asmìnum, *N*èrium Oleánder, Pittósporum, Prímula præ′nitens, and many others, all of which we bloom in the windows of our houses, as the heat requisite to be kept up in winter is quite sufficient for the cultivation of the above exotics. Very few persons have green-houses here; the neatest is one which Mrs. Bingham, the lady of William Bingham, Esq., has this year caused to be attached to her house. It contains a very well selected collection of plants, and does credit to Mrs. Bingham's taste and knowledge of floriculture.

I must now return to Henry Corse, Esq., whose garden, in St. Anne's suburbs, is a perfect curiosity. It is not above 80 ft. deep by about 100 ft. broad, and contains as much as many well cultivated gardens of four or five acres. Mr. Corse, who is a practical gardener, is fond of budding and grafting a number of species on the same tree, and from grafts received by him from Messrs. Landreth of Philadelphia; from the late M. Parmentier of Long Island; and from the London Horticultural Society, through one of its members; he has grafted at least twenty new kinds of pears, and fifty of apples, all on about two dozen of trees, and all his grafts are doing well. He has raised three seedling plums, one of which, Corse's seedling (I think it is so called), is as fine a plum as any I have ever tasted, and is of a very large size; it is of the magnum bonum kind. Mr. Corse is a great fancier of florists' flowers, in the raising of which he excels.

We have no horticultural society in operation in Montreal. Some years ago there was one in existence, which had been carried on for a number of years, and awarded medals and silver cups as prizes for florists' flowers and for fruit; but by degrees it sunk into a kind of torpid state, in which it has remained for (now) more than eight or nine years. I consider it defunct; but whenever a proposition is made to establish a new society, up starts a member of this (cataleptic) society, and says, "Oh no! I cannot join any such society, as the Montreal Horticultural Society is still in existence:" in other words "It is not dead, only in a trance!" However, a number of amateurs are determined to throw off the shackles of this half dead and alive association, and form a horticultural society, the prospectus of which I hope ere long to send you. Before I close my letter, I beg to make a few remarks on the prospects of gardeners coming out to Canada. In Canada we have no employment for forcing-gardeners, unless it be forcing raised in hot-beds in the open air. We only wish for and would employ men who understand their trade, are something of botanists, and well-educated men. By well-educated men, I mean men possessing a good English education, and who can read and write well. None but those who are industrious, honest, and *sober* men can hope to find employment. Once drunk, and a gardener loses the confidence of his employer; once discharged without a certificate of good conduct, and he will never obtain employment again. A gardener's wages vary from 2*l.* to 3*l.* 10*s.* and 4*l.* per month; an assistant gardener from 1*l.* 10*s.* to 2*l.* per month. Farm labourers get here from 12*l.* to 18*l.* per annum; farmers from 20*l.* to 40*l.*, or generally on shares. Although I find that my natural love of scribbling and talking (for which faults blame my profession) has lengthened this communication to such a degree, I still must extend it a few lines, to say that we have a very capital society in existence in Montreal, "The Montreal Natural History Society," of which I am a fellow. I will hereafter send you a description of this association, and of its museum; and I will by the first favourable opportunity send the *Transactions of the Quebec Literary and Historical Society*, of which two volumes are published.

I remain, dear Sir, yours, &c.

St. Vincent Street, Montreal, A. P. Hart.
Oct. 25. 1832.

We are extremely obliged to Mr. Hart for the above communication, and others which we have received from him; and we have also to thank our old and much esteemed friend, Mr. Cleghorn, for a packet and a letter. We wish we could hear from both parties frequently. — *Cond.*

Art. III. *On the Disabilities experienced by young Gardeners, in acquiring professional and general Knowledge.* By Scientiæ et Justitiæ Amator.

Sir,

After the interesting remarks you made upon my last communication (Vol. VIII. p. 644.), it is almost unnecessary to trouble you with another of a similar nature. It is indeed too true that the evils of which we complain are undoubtedly great, and although it is rather unpleasant to reflect that the effectual removal of them can only be accomplished "in a succeeding generation," yet surely the consideration that our efforts may in the least be instrumental for bettering the condition of our brethren will more than induce us to use every means in our power "for impressing upon the minds of all" the great importance of disseminating knowledge as one of the means by which this great end is to be gained. In proportion as advantages for mental cultivation are enjoyed and made use of by the different classes of society, we may expect to see an honourable noble-minded population. It was long the boast of gardeners to be looked up to as a class of men rather superior in their mental attainments. For, independently of many of the operations of our art being the most delightful in which man can be engaged, the beholding of the beauties of nature instinctively leads to an investigation of the properties of the objects with which we are daily conversant; and thus a principle of enquiry being produced, and the pursuit of knowledge appearing in a form more alluring to the gardener than it generally did to the mechanic, the supposed superiority of the former was the consequence. I say *was*, for I am not prepared to show that *now* it is the case. The long-slumbering spirit of research being at length aroused, a wonderful alteration has been produced in the intellectual capacities of our countrymen. But while other classes of operatives have their libraries and reading rooms, their debating clubs, and mutual instruction societies, their prize essays, and institutions for the dissemination of science; all operating as so many breezes for wafting them with full-extended sails along the tide of improvement; not only are young gardeners in general deprived of these advantages, but often additional obstacles are put in their way, so that many of those who have been able to keep pace with the age, may be said to have done so, more in spite of opposing circumstances, than from the fostering care they experienced. As the exposing of an evil is generally the first step towards its extermination, I shall, in addition to low wages, and want of proper encouragement, advert to several of the disadvantages to which we are frequently exposed, in our pursuit of general and professional knowledge.

The first impediment to many a young man begins to act as soon as he commences the profession. If he serves his time in a small establishment, he is likely to acquire a pretty good practical knowledge of his profession, as his master will converse freely with him, and give him all the information in his power. But, as the minds of youth are very susceptible of being struck with admiration of external splendour, he becomes anxious to receive his first instructions in some celebrated establishment, and willingly agrees to pay a high apprentice fee, in the expectation that he will be more initiated in the principles of the art, and finally be better qualified for, and more likely to receive, a respectable situation. Often is this hope disappointed. The master, instead of encouraging the inquisitive disposition so common to youth, seldom deigns to speak to him at all, and, from his keeping such a distance, the young man cannot summon the assurance to ask him to explain any thing that may appear a difficulty. In circumstances such as these, there is generally a foreman who exercises a sufficiently hectoring authority over the men, but who often possesses neither the ability nor the willingness to impart much useful information; and his conduct towards the journeymen (along with whom the apprentice is employed) being any thing but calculated to insure respect, they will take every opportunity of exposing his faults to each other, and holding up his operations to ridicule, so that the young man, although anxious for information, can come to no certainty in forming his ideas; but, soon seeing through some inconsistencies, both of journeymen and foreman, and acquiring the art of using his tools as dexterously as any of them, he builds himself up in his own self-sufficiency, the greatest barrier to every improvement, and seldom perceives his error until, when placed in different circumstances, he finds, to his sorrow, that, instead of being a proficient, he has his business still to learn. These things ought not to be. The occupation of a gardener is different from most others. Many of the operations of our art are so simple that they may be performed by any one. The laws and principles upon which these operations are founded are not so easily attainable, and the master-gardener who gives not instruction on these points to his apprentice, or does not cause them to be given, is guilty of little less than unjustly defrauding the young man of his money, and robbing him of his time, that most precious of all treasures.

In former days, when a man had served his apprenticeship, the means of acquiring a farther knowledge of his profession were laid open to him, his good conduct and strict attention to his duty being sufficient recommendations for enabling him to gain admittance into the most respectable establishments. Very different is the case now. From the superabundance of hands, not only is there a difficulty in procuring a journeyman's situation, but the practice is becoming common of shutting the gates of extensive establishments upon those who are either unable or unwilling to pay a premium to the master. I know of no other class of operatives that are exposed to this humiliating necessity. There are certain cases where the practice may be justifiable. When a man, after great attention and trouble, succeeds in cultivating, to a great degree of perfection, any department of the vegetable world, he cannot be found fault with for taking a compensation from those who are anxious to witness his *rationale* of culture, provided they have full opportunity of doing so, and receiving all the necessary instruction and information; but there are instances where, from attendant circumstances, it is impossible that these expectations can be realised, as in the case of a much praised establishment not a hundred miles from London, where the young men must pay a large premium before they are admitted into the grounds, and yet the individual who exacts this sum considers it beneath him to hold any intercourse with his men, and (as I have been informed) deigns not to hear a request or grant a favour, unless submitted to his consideration by being sent upon paper, in the form of a petition. I am at a loss to know how any young man can receive the worth of his money in such a place as this. It is, however, of little use mentioning instances; we must attack the principle itself, as the practice is now becoming so fashionable, that we can scarcely but come to the conclusion that it is either encouraged or winked at by gentlemen, as an excuse for not giving their head gardeners better wages. That it is attended with injurious results to the journeyman gardener (unless when more than compensated by the kindness and communicativeness of his master) cannot for a moment be doubted, were no other evils resulting from it than the impossibility, to which it exposes him, of purchasing books connected with his profession, many of which, from their extravagant price, are already too difficult to be obtained. Before leaving the subject, I shall advert to an assertion of Mr. Whidden's (Vol. VIII. p. 730.), that "no honest gardener would be so great a blockhead as to give 20*l.* for a situation." Such a sweeping declaration leads me, in charity, to suppose, that Mr. Whidden is one of those fortunate individuals who have never experienced the difficulties with which gardeners are beset. We may safely conclude that no man would do so by an act of pure volition, any more than the young gardener who consents to pay a premium at every establishment he enters. It is necessity which causes the latter to pay out of his wages from 1*s.* to 4*s.* per week, or a premium of from 4*l.* to 20*l.*, that he may be admitted into an establishment merely as a workman; and, impelled by the same necessity, the intelligent honest gardener, who had (as many have) little interest or influence to depend upon, would show very few signs of blockheadism by giving 20*l.*, if he could raise as much money, for a respectable situation, where he was likely to be comfortable, in preference to being without employment, or begging admittance into a nursery, and, when there, living for two or three years in all the agonies of disappointed hope.

Out of two evils I should select the least. Instead of finding fault with "An Enemy to Bribery," for exposing a system, because it was far from being general, Mr. Whidden either knows, or ought to know, that to stop the progress of any evil most effectually is to attack it whenever it presents itself, and not to wait until the generality of the practice, as in the case of premium-taking, proves almost a sufficient defence.

A calm comfortable state of mind greatly accelerates the acquisition of knowledge; but this advantage the journeyman gardener is often a stranger to, his mind being kept in constant uneasiness from the tyrannical conduct of his master. Those who have always been placed under kind intelligent masters can form no idea of the painful sensations which the feeling mind experiences in being placed in circumstances entirely the reverse. I am happy to inform you that the practice of tyrannising over the men is unknown in this neighbourhood; but the pleasing circumstances in which I am at present placed, under one of the most affable and communicative of masters, with great opportunities for mental cultivation, have not yet erased from my memory the recollection of scenes, not more revolting to the honourable mind, than they are subversive of the improvement of gardeners. Painful though the truth be, it must be told that there are master-gardeners whose practice gives evidence that they consider themselves a different species of beings from their assistants; and who, were it not for the laws we enjoy, would exercise their power in as cruel and overbearing a manner as ever was attempted by any blood-stained despot. I have witnessed a master-gardener, with rage in his countenance and fury in his eyes, seizing a rod, and threatening to lay prostrate a couple of his men; and, merely as an instance of haughtiness and pride, I may mention that I have seen another, who, when observing one of his assistants coming towards him for the purpose of asking a favour, generally commenced walking in another direction, so that the degraded suppliant was under the necessity of walking at his heels in making known his request, and then obliged to act the part of a dog for a considerable distance farther, before his mighty highness would deign to give an answer of yes or no. There is one comforting thought, however, that, in almost all the places I have heard of where master-gardeners are noted for their haughtiness and oppression, they are likewise known for their want of general knowledge, and a deficiency in intellectual attainments. True ability has little chance of being noticed in such places. Nay, were it not that it would take up too much space, and might be prejudicial to some individuals, I could show, from instances, that a man's general knowledge has been the means of rendering him an eyesore, and exposing him to every species of insult. To be convicted of asserting your innocence when charged with unwarranted blame is, with such men, a sufficient plea for stigmatising you with the epithets of insolent and surly, and indulging in abusive language that would disgrace a company of oyster-women, or a party of coal-heavers. The effects of such treatment not only preclude improvement during the hours of labour, but I have frequently seen that, when a young man got to his lodgings at night, instead of being in a state for applying himself to any study whatever, he has retired disconsolate to his chamber, there to experience some relaxation of his griefs, by giving vent to those distracting feelings "of which, in presence of his fellow-men, his pride had stopped the flood-gates." Some support this abominable system, considering it necessary for keeping men in subjection, and sufficiently attentive to their duties. Never was a weaker argument produced, or that showed less acquaintance with human nature. That a master should keep as much distance from his men as is necessary for respect to his authority and obedience to his commands none will deny; but that this tyrannising system can be productive of these results none will admit who have marked the fear portrayed in the countenance, and the energy apparent in every muscle, of the men, when the little despot appeared in view, and the skulking, scheming, and watching that took place, when once he was out of the way. To treat men with humanity and confidence is the true method to render them diligent and faithful. The better feelings of their nature are brought into action, and, impelled by gratitude and respect, they will strain every nerve to further their master's designs and promote his interest.

The practice prevalent in some places, of causing the young men to work beyond regular hours, without allowing them any compensation, cannot but be prejudicial, as depriving them of those hours of relaxation which ought to be devoted to mental improvement. That there are occasions when an hour or two of extra-time may be required none will deny, or seek to withhold; but the rendering of it common is not only a species of robbery, but a degrading of the young men below the labourers, who are generally permitted to go home at the regular hours. Perhaps some may say there is no necessity in the case; but the truth is, there is an absolute necessity to do so if it is required: the consequence of the least grumbling or remonstrance would be, the information, by none of the most pleasant methods, that, if you did not, another would; and thus the young men, knowing how much they are exposed to the effects of their master's caprice, are forced silently to put up with systems of oppression which they detest and abhor. In most cases I believe the practice originates in the selfishness of the master, who, to obtain a little praise to himself, strives to keep up a better appearance than the number of his assistants admits of; thus not only rendering the place uncomfortable to his men, but unpleasant to the next gardener who may come in his room. I have taken notice of this species of oppression, for the purpose of drawing toward it the attention of the employers of gardeners, as, from several circumstances which have fallen under my observation, I am inclined to think that in general they are unacquainted with the practice.

The last disadvantage to which I would allude is, the very uncomfortable hovels in which, in many instances, the young men are lodged. It is a common practice, especially in Scotland, for the young men employed in the garden to be lodged upon the premises, and yet seldom is there any place thought of for them until all the buildings are completed, and then, as a matter of course, one of the sheds behind the houses gets a sort of fit up for their reception. There are many comfortable rooms thus formed; but I know of instances where they are so cold, damp, and gloomy [see Vol. VIII. p. 596.], as to be totally unfit for human habitations. Not only do these uncomfortable abodes, by the unpleasant sensations they create, operate to a certain extent as barriers to mental improvement; but the young men, being incited to seek that pleasure abroad which they cannot enjoy at home, are often thus driven to form those habits of unsteadiness and dissipation which are both ruinous to themselves and prejudicial to the interests of their employers. I am fully convinced that, for the removal of this evil, in the greater number of instances, little more would be necessary than pointing it out to the nobleman or gentleman: but the principles of some men seem to be such, that, instead of endeavouring to diffuse happiness around them, they feel a sort of pleasure in contrasting their own commodious dwellings with the damp, dirty, unwholesome dungeons of those who are their inferiors. I can scarcely expect that you should devote any of your pages to plans for the abodes of assistants, as you are doing for head gardeners; but, that you may be fully convinced of the truth of my statements, I request that, when you again take a tour through the country, you will take a peep at some of those abominable filthy holes, often appropriated for us, which have already proved, and are still likely to prove, ruinous to many a healthy constitution.

In sending you this long train of disadvantages, I am influenced by no personal motives on the one hand, or "malice or jealousy" (Vol. VIII. p. 730.) on the other; but purely by the desire of seeing all impediments removed which obstruct the possession of real knowledge, either by the gardener or the community at large. By real knowledge, I mean not merely an acquaintance with the operations and principles of our profession, but a knowledge which, while it informs us of our rights and privileges as men, likewise shows us our duties in the different stations of society, as rulers and subjects, masters and servants, parents and children, &c.; which, in short, while it teaches us the homage which, as creatures, we owe to the Creator, likewise clearly unfolds to our view the benevolent conduct we are bound to practise toward our brethren of mankind. Sensible of my own ignorance and need of assistance, having only begun to taste the pleasures of knowledge, I feel anxious that others should not only taste, but feast upon, the same; and proud shall I be if my feeble efforts should in the least be instrumental in accelerating the propagation of a blessing needed in every climate, and suited to every soil. I call upon you, as the conductor of the Gardener's Magazine, not only to continue your assistance, but to give increased support. I call upon Mr. Mallet, and all those gentlemen who have kindly told us what we ought to be, not to stop here, but to lend their aid in getting these qualifications put within our reach. I call upon every man whose heart is imbued with the feelings of philanthropy, and whose conduct is regulated by principles which incite him to do to others as he would be done to, to let no opportunity escape of fostering the spread of intelligence, knowing it will prove a mighty instrument, not only for ameliorating that profession to which he belongs, not merely for advancing the moral character and true enjoyments of his countrymen, but also for furthering the spread of civilisation, and extending happiness and peace over the world. From men who tell us that knowledge has already been productive of evil, and that in the end it will complete the ruin of our country, we can expect nothing but opposition. Some who advocate this doctrine owe their comfortable situation in life to having received a superior education; and yet, with a miserly selfishness, they would deny the same pleasures to others, telling us, at the same time, that education only rendered workmen more insolent and unmanageable. That true knowledge renders a man insolent, in the common acceptation of the word, we will not for a moment credit; that it will show him the treatment he ought to experience, we will not attempt to deny. Unmanageable, forsooth! These would-be sages are right for once; for well do they know that the spread of information will ring the death-knell to their despotic power. Let them do what they can to stop the march of intellect; in spite of all their efforts the period *will* come when they shall no longer shine resplendent amid the gloom of ignorance with which they delight to be surrounded; when, a more extended education being placed within the reach of the labouring population, their ideas shall receive such an expansion as will lead them indignantly to throw down the habit of the slave and the badge of the serf, to array themselves in the majesty and dignity of *man;* while, at the same time, impossible though it seem to these narrow-minded upholders of wrong, a mutual attachment shall be formed between the employer and the employed, the former being rendered more generous and humane, and the latter more faithful and trustworthy. I am, Sir, yours, &c.

SCIENTIÆ ET JUSTITIÆ AMATOR.

Staffordshire, Dec. 21. 1832.

ART. IV. *Some of the Disabilities which enthral young Gardeners.* By EPHEBICUS HORTICULTOR.

Sir,

ANY unprejudiced reader of your magazine may see, and every under-gardener who knows what it is to act in that capacity, must feel, the truth and justness of the remarks of your very intelligent correspondent, "Scientiæ et Justitiæ Amator" (Vol. VIII. p. 641.), upon Mr. Mallet's advice (Vol. VIII. p. 521.) to young gardeners. The true state of the young aspirant of the spade, and the various disadvantages under which he labours, standing as hinderances to his further improvement, are subjects which ought to interest not a little every employer of gardeners, every lover of horticulture, and the editor of the Gardener's Magazine; because it is evident that each has his peculiar interests, or at least those of his successor, in some degree at stake, in the attainments of the rising generation of gardeners; for, if the young gardener has fewer advantages, he will have to contend with more privations; and, of course, by thus having less opportunity of gaining knowledge, he must retrograde in science, and a corresponding loss will hence accrue, first, to the employers of gardeners, inasmuch as the gardeners, by decreasing in knowledge, will decrease in power (for knowledge is power), and be less able to discharge the various duties incumbent on him; secondly, to every lover of gardening, in as far as the very cause and essence of his delight and admiration will be increased or diminished in proportion as the gardener is learned or ignorant; and thirdly, to you, the editor of their magazine, just inasmuch as its talent and worth depend upon the spontaneous efforts of the enlightened and intelligent part of that body. In proportion, then, as its existence is based upon their taste and scientific desires, just in as far as we recede from science, the taste for your magazine will decrease, till at last, if this declension continues, the very love of learning with gardeners, and your work, will become extinct.

The contemplation of the conduct of horticultural societies, which have for their avowed object the improvement of gardeners and gardening, to the younger members of the profession, has often excited in my mind a degree of surprise approaching to wonder. If their practice be a just criterion, the whole aim seems to be, to encourage, by every means in their power, the head gardener, who is, or at least should be, a proficient in his calling, to make greater strides in the acquisition of professional skill, and to excite in his mind a thirst for the prosecution of original investigation; while at the same time they entirely neglect the most important part of the body, the young; who are left to steer, in the prosecution of a knowledge of their business, in any manner they think most suitable to their circumstances or inclination. No prizes are awarded to them for essays, well drawn plans, or original designs; prizes which, however trifling may be their real value, would act as a sure stimulus to exertion, and might be the means of fetching out and bringing into action the latent abilities of not a few. Much could be justly said in reference to the ill-organised state and inefficiency of these societies, for the purposes for which they were instituted; but this is aside from the object of my present letter.

Your correspondent, above alluded to, has shown that we labour under disadvantages totally unknown to many other occupations, and he has touched cursorily upon the greater part of our difficulties; but, as he appears well qualified to wield the quill, and able to describe what he feels both in body and mind, I would suggest that you invite him to enter a little more into the detail of our grievances: and this I would urge the more upon you, because I am aware that the first step towards making wrong right, is to be sensible that it is so; and for another reason: — I know that many of the evils complained of by journeymen are of easy remedy; and in many cases are not the fault of the employer, but emanate too often from the intrigue and self-interested disposition of the head gardener. It might naturally be expected that persons who have passed the subordinate degrees before obtaining command would, from their experience of the situation of an inferior, be more lenient and indulgent; and would take every opportunity of impressing those under them with the true value of time, and the important uses to which it is to be applied, so as to render them fit for discharging the duties of the situation they desire eventually to fill, with credit to themselves and gratification to their employers: yet it is a fact, confirmed by experience, that the very reverse of this is the case, and I am grieved I cannot make an exception of the gardener; for, in too many instances, they treat their young assistants in such a haughty and overbearing manner as is sufficient to make the most anxious lose heart, and enough to destroy any bright embryo genius that may come under its blighting influence.

Before I proceed to detail what I have seen and experienced, and to assist as much as in me lies to extirpate that monster, oppression, from the precincts of the love-inspiring garden, let me tell you that, in re-reading some late volumes of your Magazine, I observe this subject has not been altogether overlooked by your correspondents; for in Vol. V. p. 18. I see the money-extorting system of many gardeners, entirely independent of ability or past experience, has been criticised by R. S. E. "Neutral" also (p. 101.) has made some true remarks upon their notorious arrogance and pride. I perfectly agree with the observations of both these correspondents, and confirm them by attesting their truth. But there is another disadvantage, if I am right in giving it so mild a term, under which too many of us are placed, unnoticed as yet by your correspondents; I mean the practice of working young gardeners after the regular hours for labour, without giving them any extra-remuneration. This, I believe, prevails to a much greater extent than many are aware of, and, however low and mean it really is, the practice is nevertheless extending. In many places, particularly in Scotland, the young men are obliged to work from sunrise to sunset, and in winter, when the sun will not suffice to satisfy the insatiable disposition of the gardener, artificial light is brought forward, and all jobs that can be done by its assistance are studiously reserved for this purpose. Gardeners might exculpate themselves from this foul charge, if it were the doing of their employers, or if their existence depended upon the exertions of the young men; yet even in these circumstances it would be slavish and unjust, without first giving them extra-money for extra-time, and leaving it to their option whether they would do it or not. Whenever we consider that gardeners and their assistants are employed for the express purpose of adding to the gentleman's luxuries and enjoyments, how mean and contemptible does this conduct appear! and particularly so, when we reflect farther, and observe, that, in the majority of cases, it is solely the base contrivance of the head gardener, from the still baser motive of ingratiating himself into the favour of his master, by robbing his young men of that which he is utterly unable to return, and which to them is more valuable than money: time. Medical men assure us that ten hours a day for labour is sufficient for a healthy able-bodied man; and I would add, that, where the mind has to be cultivated at the same time, a little less might suffice: but to reason upon the injustice and slavishness of this custom would be useless, and equally absurd as if I were attempting to prove the truth of a self-evident proposition. Let it suffice, then, that I give you an example from real life, omitting names and dates, as they are said to be odious, and serve little purpose, as it is the principle I wish to expose and combat, and not to give personal provocation; and an example also I think better, because it will explain my meaning more truly, and with greater effect, than any description I am able to give. Well, then; on a certain baronet's estate, not quite a third of a geographical degree from a northern metropolis, there is, or at least was, a celebrated garden, into which all young aspirants were anxious to be admitted, from the great quantum of knowledge they supposed was to be acquired within it. The gardener was a man not a little respected by his master and others, I believe. The family went three months every summer to London, and during their absence the gardener displayed his real character. Sunrise and sunset were the hours for labour, and nothing but improvement was the order of the day; and all this for the only purpose of gaining favour, by exciting surprise in the mind of his employer on his return, by having so much done, and at no extra-expense. What a wretched desire! What a despicable ambition! This gardener (and recollect that he is by no means without the countenance of others of his brethren in iniquity), at the time when the young men should be cutting the lawn, which from the absence of the family stood for hay, would make them commence work at five in the morning, and continue them, under the heat of a July sun, till seven in the evening; and then, as a mark of humanity and the greatness of his soul, he would tell them to go and get what he technically called, "a piece," and come to the green-house, where he would have plants to shift, &c., at which he would keep them employed till darkness put an end to the toils of the day! I shall now treat you with another example as it happened, and upon the truth of which you may depend, to give you an idea how very stickling they are about a few minutes, in those places where the regular hours are kept. On a certain duke's demesne, hardly the fourth of the distance of the place above mentioned from the said metropolis, there is a gardener of celebrity in the horticultural world, who, like too many others, extorts ten pounds from every journeyman he employs, aside from abilities or qualifications. It happened that several of the young men and a foreman were employed in cleaning walks at some distance from the garden. At the hour of cessation from labour for dinner, three of them strolled away in search of some native plants by a neighbouring river side, in search of which they spent so much time as to be unable to reach their work till ten minutes after the stated hour: on arriving, the foreman told them, that, as they were behind time, he could not allow them to commence work without they first got the liberty of the head gardener. Accordingly, the three set out to hear the decision of their master, which turned out to be the following: — "You must either return, and beg the foreman's pardon; or else leave the place." Two of them, having already paid their entry money, thought it a pity to sacrifice so much cash for this humbling whim of their master, and accordingly complied: the other, having his money still in his possession, refused, and consequently was immediately dismissed. What man endowed with a healthy body could stoop to such degradation? Who, with a sound mind, or the spirit of a man, could yield to such debasement! Some may think I have chosen extreme cases; but I can assure you that these two are picked out at random, from a host of equal hue, and without going to the right or left in search of them.

Before concluding, I have a word or two to say about what kind of educated gardeners we may expect shortly. According to correspondents of your magazine, we ought, besides a common English education, joined with a general knowledge of arithmetic, to possess an acquaintance with the dead languages, and with as many of the living as possible; added to these, a very considerable knowledge of natural history and natural philosophy, and also to travel, not only through our own island, but to visit the Continent, &c. Now, supposing that a father was placed in circumstances capable of giving his son all these qualifications, would you not, if he asked your advice, advise him to put his son to some more profitable occupation than that of a gardener; in which he would have to labour for ten or twelve years, under gardeners ten or twenty times more ignorant than himself, and that, too, for a remuneration barely sufficient to support him in existence; where he would have to contend with all the privations and ignominy of a young gardener's life; and, after all, be placed in a situation, perhaps, where a whimsical master, or a capricious mistress, an invidious land steward, a self-conceited ignorant housekeeper, or a greasy cook, would be continually pestering his brains, if not daily endangering him of his situation? I ask, would you not consider that parent as only a slight remove from a madman, who would be so utterly devoid of common sense as to do *so*? First, then, let the gardener receive a recompense worthy of these qualifications, and, by necessary consequence, learned and scientific gardeners will immediately follow; but not till then. This is the true solution of the question. Rejecting empirics, and taking gardeners as a body, I do think they are every whit as well learned as they are well paid; and I question very much whether the great and learned Sir Henry Steuart (giving every allowance for the superior talents and genius which have been conferred upon him), if he had received but an indifferent education, and had had to encounter the disadvantages of the gardener, would have been qualified to have exposed our ignorance and self-sufficiency; or whether, in these circumstances, he would have been able to have arrived at mediocrity in our profession? If an effort be not made shortly for the raising of the situation of the young gardener, we, as a professional body, shall fall back in knowledge; and, a recession once fairly begun, we shall recede with accelerated rapidity, and perhaps (like some of the laws of the universe) our velocity will increase according to the squares of the distances passed over, and none can tell where we may finally stand.

I have extended these observations much beyond my anticipation, and I find that I could yet say a little more upon this rather touching subject; but, in case you think me tedious, I shall conclude by stating that, if you publish them, you will give publicity to the sentiments of the majority of young gardeners on this subject, so far as I have been able to ascertain them, sentiments impressed upon them by observation, and taught them by that rigid schoolmaster experience, as well as on, Sir, yours, &c.

EPHEBICUS HORTICULTOR.

Peeblesshire, Jan. 29. 1833.

Art. V. *On the Electricity of Nature, and its Connection with Magnetism and with the other grand Natural Phenomena.* By the Author of the "Domestic Gardener's Manual."

Sir,

On perusing the report of Mr. Ritchie's lecture upon "the relation between electricity and magnetism," given at p. 128. of the fourth number of the *Journal of the Royal Institution*, I was forcibly struck with the concluding remark, that "we were fast approaching to the period when all the phenomena of light, electricity, &c., would probably be referred to the same great cause, merely acting in different ways."

My attention was peculiarly excited by the quotation from one of the lectures of the late Professor Playfair, alluding to the probable discovery of the existence of one general principle, which would be found to unite all the grand natural phenomena, and to connect them with that of gravitation. I could not but feel deeply interested by these concluding remarks of the lecturer, because they brought to my recollection that, upon the memorable observation (not to style it prediction) of Professor Playfair, above alluded to, I was led to ground the electrical hypothesis by which I have endeavoured to explain the various phenomena of vegetable life and growth. It will be evident, on referring to the closing paragraphs of the preface to the *Domestic Gardener's Manual*, p. 6., that I am correct in what I assert; for I therein observe that "the conjecture of this great man has, to a certain extent, been verified; and that it may not be presumptuous to conjecture that the great principle itself will ultimately be referred to one grand and only source. I believe that the source is already discovered and known, and that it only requires the philosophic mind to divest itself of prejudices, and to cease from pursuing shadows, since the substance itself stands revealed to the view of all. If I succeed in rendering this apparent, I shall enjoy the satisfaction of having done something for the cause of science, by simplifying the means of scientific research into the operations of that grand principle, which I cannot but view as the source of, and prime operative agent in, all the phenomena of the material world."

The immediate object of this paper is to point out the prime source of that fluid, or ethereal essence, misnamed electricity; and to afford evidence of its universal diffusion and general agency. But, in order to render my meaning as clear and free from ambiguity as possible, I shall premise that I consider the electricity of nature to be distinct (in its effect, at least) from the electricity in masses, as revealed and brought into action by our machines; and that, however homogeneous the two fluids may be in their physical constitution, they differ essentially in the nature of the energy they exert, particularly in that employed in the developement of the vegetable structure.

Without at this time dwelling upon the enquiry, whether every individual substance throughout nature be or be not possessed of an electricity specifically peculiar to itself, I shall observe, in passing, that I conceive that every portion of matter is imbued with a certain quantity of electricity, existing either in a state of actual chemical union with, and as one of, its constituents; or in that of simple interstitial infiltration between its molecular particles. The phenomena of atmospheric decompositions, of lightning, and of voltaic electricity, tend, I think, to demonstrate the chemical energy exerted by the ethereal fluid; while those of friction, of percussion, and of endosmosis (or the penetrativeness of liquids and gases), afford evidence of molecular deposition. Perhaps it would not be unphilosophical to hazard the conjecture that electricity, in whatever state it exists, is the grand natural cement; and that by it every substance, whether solid, fluid, or gaseous, is retained in its specific state of chemical, or (as it may be termed) mechanical, union; and that every act or process of percussion, of decomposition, or of combination, and the like, tends to produce, or is accompanied by, a change in the electrical condition of a body so disturbed.

In as much as refers to electro-chemical action, I may be permitted to assume —

First, that "all bodies which have a chemical affinity for each other are in opposite states of electricity; and chemical affinity depends so much upon electricity, that their natural affinities may be modified or destroyed (by what is termed) artificial means."

Secondly, "Those substances or bodies which are incapable of chemical combinations are uniformly in the same electrical condition; since they repel, but cannot attract, each other."

Thirdly, "Since bodies which attract one another are possessed of different electricities, and those which repel one another are possessed of the same electricity (phenomena which are in exact conformity with those of artificial electricity), it follows that all bodies which attract or repel one another are electrified bodies. When bodies possessing opposite qualities, such as those of acid and alkali, enter into union, they do so by the attractive or disposing influence of their respective electricities; and, in the act of union, the two chemical bodies, and also the two disposing electricities, neutralise each other, and lose their distinctive qualities: and as the union has been induced and effected by electric attraction, so it is maintained by the quiescent attraction of the two electricities; till it becomes disturbed by a more powerful agency, which induces a change in the neutral substance, and gives its constituents a tendency to enter into new arrangements."

For the first two of the above principles I am wholly indebted to the high authority of the illustrious Davy; the third is dependent upon the two preceding, although it is somewhat more comprehensive in the views that it embraces.

I come now to the consideration of that important, that paramount agency, which appears to me to be constantly and universally in a state of active operation. It has been already mentioned, that the great principle of union, first named by Professor Playfair, and recently referred to by Mr. Ritchie, is, in fact, actually known; but, as is too frequently the case, men of even the highest mental endowments are too apt to overlook the most visible evidence of facts, and to pursue some phantom of the imagination. Thus it appears to have happened with respect to the subject now under enquiry.

The sun, the great fountain of light, is daily seen; its influence is felt and acknowledged by all: still, however, as this grand luminary is constantly before the eyes of man, he fails in duly appreciating the stupendous importance of his agency, and the number or magnitude of the phenomena which he induces. To this luminary, this centre of our planetary system, we must have recourse, if we hope ever to discover the primary governing principle. It is in vain that we investigate and compare known results; that we institute further and more severe experimental enquiries, with a view to ascertain some certain bond or connecting link between the several natural phenomena: the fact is, let us search how and where we may, we discover nothing but mere effects, the results produced by some mighty cause (I speak not abstractedly of the First Cause); and, therefore, as we possess, in the sun, a substance, a reality, to which certain known effects can, without the possibility of doubt, or the fear of error, be traced, it would appear true wisdom to bend every effort of the mind, and to call in aid all that the power of instruments can effect, in order to determine the nature of the solar light.

Having thus generalised, I now proceed to adduce a few particular striking facts, which, after mature reflection, have led me to conclude that the sun is the one great principle to which all the higher phenomena must finally be referred; and these facts I shall arrange under the following heads: —

1. The sun is the source of *light*, which is imparted to the earth in beams or rays. This solar light is the origin of the colouring principle throughout nature. The fact is proved by daily observation upon the effects produced by light upon vegetable bodies, and by numberless chemical and prismatic phenomena. Magnetic properties are communicated by the blue and violet rays. This was noticed by Dr. Morichini of Rome; and the fact, as is familiarly known, was established by the experiments of Mrs. Somerville; who covered one half of a sewing-needle with paper, and exposed the other half, for two hours, to the violet rays, by which the needle acquired polarity.

2. *Heat is generated* by the rays, and is particularly manifested in those rays that are most remote from the others that evince magnetic powers. Thus, the heating power increases from the middle of the prismatic spectrum to the red ray, and is greatest beyond the visible boundary of that ray. These facts were ascertained by Dr. Herschel, and confirmed by Sir H. Englefield and Sir Humphry Davy.

3. The sun's rays, it should appear, are *not the direct vehicles of heat;* for not only does the temperature of the transparent media through which they pass remain unaltered, but that of the atmosphere is subject to sudden and various mutations, without any assignable cause. The last-named fact may be within the recollection of almost every attentive observer of the weather; because he must have remarked that, in one and the same day, perhaps within the space of an hour, there has been an increase or reduction of thermometric temperature of from 5° to 10°, without any sensible alteration in the power and brilliancy of the sun's rays.

4. *Electricity* is originated and made manifest by the solar agency. This, perhaps, may be considered a self-evident fact, and one proved by the frequent occurrence of thunder storms, and of silent evening lightning during very hot weather. These phenomena, however, I cannot consider as affording, by any means, the most conclusive evidence of the electrising agency of the solar rays; for they admit of several marked exceptions. In the second and fourth leading sections of February and April, in the *Domestic Gardener's Manual*, I have endeavoured to point out many striking phenomena, which can scarcely fail to indicate the direct electrical agency of the sun; but these my limits will not now permit me to adduce. I shall content myself by observing, that if (as was stated by Mr. Ritchie, in the lecture before alluded to) the sun may be regarded as "the visible cause of terrestrial magnetism," a phenomenon which, perhaps, may

be produced by "currents of electricity circulating about from east to west," then the conclusion seems inevitable, that either the electrical and magnetic fluids are identically one in essence, though, perhaps, liable to certain modifications; or, that the electric fluid is derived primarily from the sun, and induces the several magnetic phenomena, by an energy exerted upon certain substances within the earth's surface: in either case, the sun must be referred to as the prime actuating cause.

Mr. Ritchie's farther remarks are pertinent to the idea above suggested; for he says, in reference to the questions, "How are these (electro-magnetic) currents generated? — Are they voltaic or thermo-electric? — from the constitution of our globe, we can scarcely doubt that they belong to the latter class. The earth abounds with metalliferous veins, and these veins are undoubtedly of different temperatures: consequently, thermo-electric effects must take place. The rapid change in the magnetic equator, when approaching South America, renders this supposition highly probable." (*Journal of the Royal Institution*, Aug. 1831, p. 130.)

5. The sun's rays, for the most part, strike the surface of the earth, and produce the developement of heat, varying in intensity according to the then existing state of the atmospheric medium through which they pass; and, perhaps, according to the nature and extent of the electrising processes induced within that surface upon which the rays impinge. The light thus radiated must be either reflected, absorbed, or extinguished.

That a portion of it is reflected, no one acquainted with astronomical facts can entertain a doubt. That another and considerable portion is absorbed is proved, almost to a demonstration, by the increase of temperature at a considerable depth below the surface of the ground; and by numerous electrical and magnetic phenomena. That any portion is extinguished or destroyed, is contradicted by the direct analogy of facts; for all nature affords irrefragable evidence that not an iota of her productions ever was or can be lost.

From the foregoing and many other considerations, I have arrived at the conclusion that, as the surface of the earth is the grand absorbing medium of the rays of light, the portion absorbed, not being extinguished, must inevitably be productive of many stupendous phenomena, some of which I shall now endeavour cursorily to point out.

Without entertaining, to its full extent, the theory of Professor Leslie, that the globe is cavernous, its central cavern being replete with light, "shining with intense refulgence, and overpowering splendour," I cannot but suggest, first, that much of the ethereal solar light is distributed interstitially among the molecular particles of the substances that compose our terraqueous globe; that this light is masked or hidden till it becomes deranged by some disturbance of the molecular particles; but, when so deranged, it gives rise to the several phenomena termed electrical, which result from friction, percussion, or disruption. Hence it may be concluded that the attraction of cohesion has its origin in the ethereal light that is dispersed throughout all material substances.

Secondly, that whatever portion of light is not so distributed may exert an energy more strictly chemical, in the decomposition and reproduction of water, the oxidation of metals, the developement of gaseous bodies, and the like. It is, as I conceive, during the induction of these phenomena that the electrising process is begun and perfected; and this, perhaps, not only by a decomposition or modification of the matter of solar light, but by its direct action upon the decomposable matters within the earth's surface; and from this electrising process result the separation of the magnetic fluid, and the developement of free electricity and heat. May not earthquakes, the eruption of volcanoes, and other stupendous convulsions, be referred to chemical or voltaic decomposition effected by the agency of absorbed light?

My ideas accord (partially, at least) with the suggestion of Dr. Hutton, at the close of his article on electricity, in his *Mathematical Dictionary.* "Perhaps," he observes, "we may be allowed to extend our views, and consider the sun as the fountain of the electric fluid, of the zodiacal light, the tails of comets, the aurora borealis, lightning, and artificial electricity, and of its various and not dissimilar modifications."

If I have succeeded in affording evidence of the actual existence of one great principle of union, and have shown that this principle is the sun, and therefore that it would be futile to seek for any other, it will only be required to point out the way in which that principle may farther act so as to connect all the other great natural phenomena with that of gravitation. The "attraction of gravitation" is a term that is employed by every one who attempts to explain the cause of the descent or fall of any body possessing solidity and weight. Attraction infers the operation of an agent by which bodies are induced to approach to, and come in contact with, it. Electrified bodies induce an opposite electrical condition in other bodies within the range of their influence; and the two are then attracted, the one to the other, in obedience to the law of electrical induction: this is familiarly known to all electricians. Now, it appears certain that the agency of induction is in constant operation, and that no limits can be set to the extent of its agency. It moreover appears that the spherical form is the one most favourable to the retention of the electric fluid; while, on the contrary, points tend to produce its rapid dispersion. The earth and moon are of a form almost spherical; and there is little doubt that electricity is distributed over their surfaces, and is maintained and renewed by the electrising principle of the sun's rays. If, then, the surfaces of the planetary bodies be in an active electrical condition, will they not tend mutually to attract each other? With these considerations before us, it must be reasonable to pause, and enquire whether an agent like electricity, so subtle, so powerful, so susceptible of infinite modifications (the reality of whose existence is undeniable, and the nature of whose phenomena admits of absolute demonstration by experiment), whether such an agent may not be capable of producing all the phenomena which are usually ascribed to gravitation; whether it may not govern the movements of, and regulate those attractions between, a planet and its satellites, on which depend the vicissitudes of the seasons, the alternations of day and night, and the ebbing and flowing of the tides. Electricity is known to exist; it is known to be more or less in a state of constant operation: in a word, it is a cause producing effects. Gravitation, on the contrary, is a conventional term for an effect; certain, indeed, but resulting from no ascertained cause. We have, then, to decide, whether it be not more philosophical to admit that so tremendously powerful an agent as electricity is capable of inducing all the effects ascribed to gravitation, than to remain satisfied with the assumption that bodies gravitate; solely because, by the law of their creation, they tend to fall towards a centre; or to believe, according to some writers, 'that every particle of matter in nature gravitates or tends towards every other particle.'

If it be permitted to us to enlarge our views, and to suppose that the sun's electrising power operates upon the whole planetary system, and establishes all their primary and secondary relations, which act and react one on the other; if, moreover, we conceive the probability of a mutual interchange of influences existing between the sun and its planets; and that he attracts and receives from them that matter which supports and renews the luminous fluid that composes his own rays, how vastly comprehensive will appear the mighty plan of operations, a plan by which not even a particle of light ever is or shall be ever lost! Comets have, by some, been supposed to regulate the electrical relations between the sun and his planets; and, by others, to supply the loss which the sun sustains by emitting rays of light and heat. I am inclined to believe that the agency of induction and attraction is universal and complete; that a reciprocal and harmonious interchange is for ever going on between the sun and the planets; and that the sun itself is the one sole "'great principle' which operates and connects together all the phenomena of the material world.'"

I have not hesitated to introduce, in the foregoing paper, several passages from the early sections of the *Domestic Gardener's Manual*, with trifling modifications: this the reader who is in possession of that work will scarcely fail to discover. By thus borrowing, as it were, from myself, I have been enabled, without incurring the charge of plagiarism, to embody most of the facts which constitute the basis and substance of the electrical theory that is impressed forcibly upon my mind, as being alone capable of elucidating all the great natural phenomena. There is much of the hypothetical, I admit, in the view I have taken of the predominating agency of absorbed solar light; but, wherever doubt exists at all, and mysterious effects are observed, the actuating machinery of which cannot be brought within the power of human perception, theory must be allowed; unless, indeed, it be required that the powers of the mind remain dormant. The case admits of no other alternative.

He, however, who, while he endeavours modestly to exhibit the ideas which are forcibly impressed upon his mind, in the hopes of stimulating to scientific research, neither asserts dogmatically, nor claims authority to dictate to the faith of others, cannot justly be accused of presumption. "The germs of discovery are often found in rational speculations;" and that hypothesis which is presented to the test of philosophic investigation may, without arrogant assumption, be deemed the pioneer of science.

Jan. 21. 1833. G. J. T.

ART. VI. *A Reply to Mr. Main's Question to the Author of the "Domestic Gardener's Manual."* By the Author of the "Domestic Gardener's Manual."

Sir,

I OBSERVE, in Vol. VIII. p. 652., that there is a paper addressing, not one but two distinct questions to me, on points of great interest in the science of vegetable physiology, to which I had particularly adverted in an article on the sap-vessels (Vol. VIII. p. 142.).

As Mr. Main claims my earliest notice, and I very much wish to meet his views, I regret that I did not see his communication until the 18th inst. (Dec. 1832). However, I hope I may still be in time for your next publication. If I do not greatly mistake, Mr. Main is the gentleman who penned the review of the *Domestic Gardener's Manual*, in Vol. VII. p. 57. (as I perceive by the index; for I have not the number by me). The article now before me is written in a style that identifies it, to the best of my recollection, with that of the review; and I beg to return my best and cordial thanks for the kindly spirit which breathes through both one and the other.

The first question proposed by Mr. Main is grounded upon an extract from a letter that I had received from Mr. Knight. The hypothesis therein noticed belongs exclusively to that gentleman. It is a deduction from his own positive observations and experiments: the very expressions quoted are, verbatim, those of Mr. Knight. "The nutriment absorbed becomes the true sap or living blood of the plant, by exposure to light in the leaf; it descends by the bark, by which the matter that forms the layer of alburnum is deposited."

I cordially, it is true, acquiesce in this opinion of the origin of the alburnous deposit; still, however, although Mr. Main disclaims as inadmissible the answers of any other person but myself to his questions, he surely cannot, upon due consideration, refuse to receive Mr. Knight's own testimony in support of a hypothesis originally his own. I, therefore, must take the liberty to state the following question, and respectfully to request Mr. Main to afford it his most serious reflection; and not to stop there, but to make the fact of which it treats the subject of close investigation and critical experiment. This will not be difficult during the ensuing spring; and the results may be fully ascertained in the course of a few months.

I ask, then, has not Mr. Knight asserted, in the *Philosophical Transactions*, that, having partially detached strips of bark of the walnut tree, of several inches' length, from the alburnum, in the spring, he introduced beneath such bark two folds of paper, each of which was coated on both sides with bees' wax; so that such strips of bark were placed wholly out of contact with the alburnum, or other bark of the tree, except at their upper ends. Air and light were excluded by a covering of clay till autumn, when as much alburnum was deposited upon the paper, along the whole extent of the bark, as was deposited by a similar extent of bark which retained its natural place and state.

Now, if the matter of the alburnum was not deposited by the bark upon the folds of the paper, will Mr. Main be so obliging as to explain by the agency of what body it was deposited, and from whence the substance of it was derived?

Perhaps that degree of reflection which is certainly due to a fact so interesting as the one I have just presented in the form of a question to Mr. Main, will assist him in the removal of some of those "stumbling-blocks" which he alludes to; and I now hasten to reply to those enquiries which are more immediately directed to myself. I am asked whether "it is possible that organic structure can be formed out of mere fluids; whether simple or compound, as they are found in the root, stem, leaves, flowers, or fruits of plants?"

Is it to be believed that Mr. Main was serious and in earnest when he penned this enquiry? Could he have reflected for one moment upon a multiplicity of facts connected with the nutriment of plants, that must have come under his observation? Without trespassing further, Sir, upon your pages, I think I might content myself by referring my querist to the paper upon *B*alsamìna horténsis (Vol. VIII. p. 403. to 407.) for an ample and sufficient answer to his question; but, perhaps, courtesy requires that I should adduce some other facts that will apply directly to it. Before I proceed to do so, I must, however, request him to oblige me by re-perusing that paper on the balsam: and now, presuming that he has so done, I would ask, how, if Mr. Main believes it to be a philosophical truth that the roots of plants are incapable of imbibing an atom of the most impalpable powders, that they cannot absorb particles of matter so inconceivably fine as those afforded to water by the solution of a colouring material; how, if he believes these things, he can imagine that any substance more solid, or of greater density, than pure water can enter into, or be conveyed through, the conducting vessels of a vegetable body, be they cellular or tubular?

But, perhaps, it may be argued that colouring matters have unquestionably been observed to pass into the vegetable structure. In fact, I myself have proved that they can be taken up by a variety of vegetable subjects; but these have always been mutilations, not perfect plants in a healthy and growing state. However, without dwelling further upon that which I noticed particularly in another place, I proceed to solicit Mr. Main's attention to a striking fact, that bears upon the subject of his enquiry. Any plant growing in a pot might serve my present purpose; but I select the vine, because it is the one which, for a short period previous to the expansion of the leaves, is most inclined to bleed. Such a plant now comes within my immediate observation. In October, this vine was in a torpid condition; it was then removed from a small pot into a large one, containing a rich soil, composed of chopped turf, the earthy part of which was a sandy loam. This turf was manured with half-decayed dung of poultry, and rendered more light by a small portion of lime rubbish. The vine was placed in a house where the average temperature is, and has been for the last six weeks, about 55°. The soil is kept moist to saturation with rain water; insomuch, that a pan under the pot has generally more or less of water that has filtrated into it. Once a week this vine receives, in addition, a pint or more of soap-suds; or manured water, from the drainings of a cow-stall, diluted with an equal part of water. This liquor consists of urine, holding some cow manure in solution: the former contains much ammonia, and the latter a good deal of bile, besides a variety of saline and hydro-carbonous compounds. It is not, however, my present object to investigate these matters chemically, but simply to evince that, notwithstanding the richness of the compost soil in the first instance, and the occasional application of a stimulating liquid, the water which percolates the mould into the pan appears to be deprived of all soluble matters whatsoever, and it is colourless, void of taste, odour, and, indeed, of any quality that could lead one to suppose that such highly fetid and sapid ingredients are repeatedly superadded to the soil.

Now, what conclusion can be drawn from the foregoing statement of simple facts? None other, surely, than this: that not only all the soluble and decomposable animal and vegetable matters that were originally introduced, but every separable part of whatever has subsequently been added to the soil, are arrested by it, and retained in close contact with the roots of the plant. So situated, if solid matters could by any possibility be taken up by, or propelled into, the absorbent vessels of the roots, they should be found in the ascending sap of the plant: and yet, when I had occasion to prune off a projecting piece of wood just above an expanding bud of the leader, the juice that exuded in drops was as limpid, as colourless, and nearly as insipid, as pure water itself. The leading buds have at this period produced two fine strong shoots, with perfect and healthy foliage: and, thus, nearly 4 ft. in length of oxy-hydro-carbonous solid substances have been added to the plant, by the agency (as far, at least, as the roots have been concerned) of a bland watery fluid; almost, if not entirely, free from taste, odour, or colour.

This vine, then, has derived its support, and produced its leaves and shoots, either, first, from the ascending fluid and insipid sap; or, secondly, from the still more fluid (that is, gaseous) matters of the aerial medium surrounding its stem, buds, and leaves; or, thirdly, by the assimilation of substances (inherent or imbibed) by the mysterious agency of the vital principle. The conclusion, therefore, seems inevitable, that all the vegetable solids are, without one single exception, the product of fluids or gases, or of both; attracted and propelled through the appropriate organic processes of the roots and leaves; and that the compound fluids, "as they are found in the roots, stem, leaves, flowers, or fruits," result from the operation of an electro-chemical agency within the cellular tissue, that is excited by the influence of solar light: which light is the true, natural, electric, elementary fire; the primary exciting agent; the chief actuator of all the phenomena of secondary light; of heat, vegetable growth, and, perhaps, of the vital principle itself.

The foregoing examples from the vegetable creation may suffice. I could, however, multiply them to almost any extent; and, were I to apply to chemical facts, I might swell the catalogue to such an immeasurable length, that you, Sir, as Conductor, might justly exclaim, "What? will the line extend to the crack of doom?" I might adduce the decomposition and re-formation of water, those of carbon, carbonic acid, of sulphur and sulphuric acid; the solution of metals, and their diffusion through a measureless bulk of water; the conversion of mercury into vapour, and its dispersion into thin air; the astonishing combustion of the metal potassium, when in contact with water, and the consequent solution of its alkaline product therein. These, and hundreds of other chemical phenomena, might be cited, in order to prove that solids may be, and are, daily and hourly, formed out of fluids. What is more (and it is of vast consequence to the argument), these chemical facts would afford me a very powerful weapon, wherewith I could turn round upon Mr. Main, and challenge him to deny, or even disbelieve, that fluids are formed out of solids. Now, if there be any force in analogy, it cannot, surely, be more unreasonable to conclude that solids may be produced from fluids, than that liquids, and even gases, may be formed and evolved from solids!

I now come to Mr. Main's final question. "If," he asks, "such a process of accretion be possible, I would wish to be informed how it takes place, and particularly whether there be any similar process or instance, in the whole range of animated nature, with which it can be compared?"

Mr. Main cannot surely be ignorant that the whole solid matter which, during their growth, is added to the bodies of animals, is secreted from their fluid blood; and that, when a bone is broken, or a part of it taken away, in any animal in a healthy state, the necessary amount of specific matter to repair the injury done is secreted and deposited where wanted. Had Mr. Main consulted the works of many eminent physiologists of Germany and France, and, indeed, of every part of the world, he, perhaps, would have been convinced that they do not contain a single sentence expressive of a doubt that the true sap of plants possesses, relatively to the functions of vegetable life, powers very closely analogous to those of the blood of animals.

Perhaps he might object, that the red blood of animals is a heavy compound fluid, abounding with coagulable matters. Agreed. But what then? Does not blood, in its fluid state, afford another example of the conversion of the hardest and most intractable substances, as grain, bone, cartilage, muscle, &c., into a liquid? But again; what has colour to do with the question? The circulating fluid is white, or devoid of tint, in some species, and yet retains the name of blood. The absence or presence of colour will not destroy the analogy; since the proper juice of plants varies, in that particular, more than the blood does. Fishes have red blood; yet they float in an aqueous medium, which contains no colouring or coagulable material. But some fishes devour their fellows. True. This fact can, however, be scarcely brought forward in the instance of fish kept for months and years in a glass globe, and supported by repeated additions of fresh and pure water only.

Mr. Main has asked, how such and such effects can be produced; how the process of accretion takes place? The answer is obvious: they originate in vital action and the chemical powers of life, whose modes of operation are placed beyond the range of human investigation.

We witness these effects; so we do those of millions of astounding natural phenomena. Thus, the solar rays strike the earth; heat is evolved; evaporation is occasioned; clouds are formed; and the solar light, that had been absorbed and masked (not quenched) within the earth's surface, and amidst the congregated volume of vapours, keeping their atoms apart and in a state of repulsion, is suddenly reproduced, revealed in flashes of ethereal fire; while deluges of rain succeed, and afford evidence of the coalescence of the watery vapours; and, perhaps, also of the deflagration of floating masses of oxygen and hydrogen, the elements of water. These mighty operations astonish and overcome us; but they are neither more nor less wonderful than the developement of a leaf, the protrusion of a bristle, or the conversion of the fluid cambium into the cellular tissue of the alburnum. Where all is wonder, we can only trace and reason upon second causes; but if we go beyond, and attempt to penetrate into the mysteries of creation, our senses become bewildered, and the clue is lost. Here we must be contented to pause, and to confess that such knowledge "is too wonderful for us; we cannot attain unto it."

Dec. 25. 1832. G. J. T.

Art. VII. *Remarks on Mr. Main's Question to the Author of the "Domestic Gardener's Manual."* By Joseph Hayward, Esq., Author of the "Science of Horticulture," &c.

Sir,

Your correspondent, Mr. Main asks (Vol. VIII. p. 652.), "Is it possible that organic structure can be formed out of mere fluids, whether simple or compound, as they are formed in the root, stem, leaves, flowers, or fruit of plants? If such a process of accretion be possible, I would wish to be informed how it takes place; and particularly, whether there be any similar process or instance, in the whole range of animated nature, with which it can be compared?" Now, as it would be ridiculous to offer an answer that Mr. Main cannot understand, allow me to ask him, by what means does he suppose his bones and other organic structure were enlarged during the five or six months following his birth, otherwise than by the accretion produced from his mother's milk? Or, if this be not thought a fluid sufficiently simple to meet his question, let him look into his tea kettle, and inform himself whence the accretion which forms the lining of stone which he will there find, if not from the water which is boiled in it? And if this be not a liquid sufficiently limpid, let him try Sir H. Davy's experiment of procuring pure carbon, by burning spirit of wine in a glass tube. But if he wishes to delve into those hidden secrets of nature (which never have been, and most probably never will be, made known to man, at least in his corporeal existence), that secret, or those secrets, by which the living principle is formed and determined in its action, and to become a second Prometheus, I do not know how he is to obtain this power, unless he will do as Goethe made his Dr. Faust do for the same purpose, sell himself to the devil. I believe, Sir, the true reason why our ingenious philosophers have not succeeded in establishing more perfect systems of gardening and farming is, that they devoted themselves so much to the discovery of the process by which nature forms the organs of plants and animals, as the alburnum, the leaves, the nerves, the brains, &c., as to have overlooked the uses for which they were made.

I am, Sir, yours, &c.

Radipole, Feb. 7. 1833. JOSEPH HAYWARD.

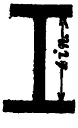
ART. VIII. *An Economical Mode of building Garden Walls, Sheds, and other Garden and Agricultural Structures.* By R. MALLET, Esq.

Sir,

THOUGH the principal object of this paper is to point out a cheap and durable method of constructing garden walls, I have yet incidentally mixed up with it various hints on constructing other country buildings of different kinds; garden sheds, tool houses, mushroom houses, men's lodges, and gardeners' houses, being as generally required as walls.

Buildings, one or two stories high, may be more cheaply erected with cast-iron uprights, and the spaces between filled up with any kind of durable materials, say bricks made for the purpose, sandstone flags, slates, or timber, according to locality. In this way buildings of great cheapness, occupying little useless space in thickness of walls, and incapable of prostration by any hurricane, could be erected, and, moreover, would be portable, if that were considered an advantage. The section of each iron upright should be as in *fig.* 42.

42



Supposing those placed in the plane of the walls of the intended edifice (the only foundation for which need be the blocks of stone for them to rest on), the spaces between might be filled up by bricks, made as in *fig.* 43., of which *a b* is a perspective view, *c* a cross section, and *d* a portion of the cast-iron upright, with the brick placed in its grooves. These bricks lock into one another, and thus may be put together and stand without cement; or they might be merely dipped into thin grout before laying together, and thus their staunchness insured.

Rabbeted bricks of this kind would be as easily made as

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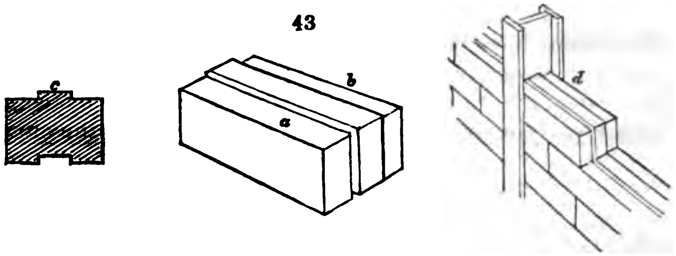

common ones, and the rabbet, like that of a sash, would prevent water from flowing through. A 4-inch wall, built in this way, with posts at every four feet, would be as stiff and strong as an ordinary 14-inch wall, and, excluding the original expense of brickmaking and foundery apparatus, would not cost above one third the expense. The bottom course of bricks should be laid across, under the surface, as in *fig.* 44., to form a broad foundation. The general appearance of such a wall would be as in *fig.* 45. Windows might obviously be made, with perfect facility, of any required size, and cast-iron frames and sashes are the cheapest of all kinds. Mr. Frost's ingenious earthen tubes might be used for filling the interspaces of these walls. When slates, boards, or flags are used, the breadth of the rabbet in the iron post may be considerably less, say an inch, as in *fig.* 46. Slate houses of great strength and durability might be made by filling up the spaces with two surfaces of slate, distant three or four inches, and filling up the interval with gravel and grout, or rammed puddle, as in *fig.* 47., in which *a* is the iron upright, *b* the slates, and *c* the puddle or filling-up matter. Slates thus placed, from the inertia and inelasticity of the mass, would almost resist fracture; a blow

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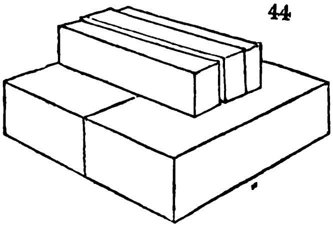

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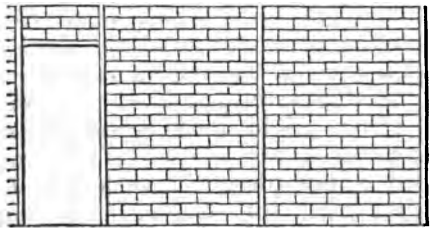

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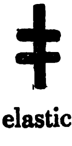

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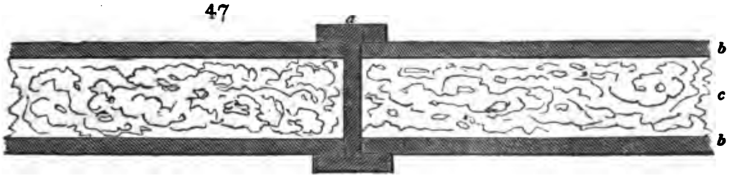
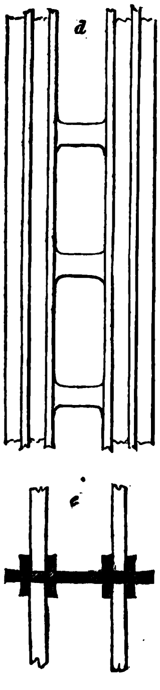


of a hammer would only punch a hole through, without shattering the slate. In Wales and Cumberland, slates; in the iron districts, and in London, bricks; in Yorkshire, Lancashire, and Scotland, sandstone flags; and, in America, timber, would be the cheapest filling materials.

Slate walls made in the way last mentioned, with the addition of eyes cast to one side of the iron uprights for the wires of a trellis, and the slates painted black, would appear to be the best garden walls that could be erected.

48



They could harbour no insects, would not be eaten out by nailing, would look better than brick walls, and the tops of the uprights be available for rolling-blinds, &c., for protection.

Perhaps the deep violet colour of the slates would be the best possible for garden walls, which I deduce from some recent observations on the rays of light and heat.

These slate walls might be hollow, viz. filled with rounded pebbles and nothing else, and thus be heated by steam occasionally, or be entirely hollow, with a double rabbet, and perforated uprightly, and become long smoke flues of great depth and thinness, as in *fig.* 48., in which *d* is the side view of an upright, and *e* a cross section or plan.

There is no difficulty in procuring slates with square-sawn edges, 4 ft. square or more; and, if the trees were tied with twine, or spun yarn boiled in Indian-rubber varnish, or even in oil, a great saving in nails, shreds, labour, and repairs of walls would accrue.

Walls with a southern aspect might have the back side, viz. the north aspect, painted white, or covered with straw matting; or ivy might be permitted to grow on them, to prevent the radiation of heat on that side. The roots of trees planted against such walls would have less interruption than against brick walls built in the common or even the best way, viz. upon piers.

The joints of the slates might be put together with tar, which would prevent insects from ever touching them, and make them steam or smoke staunch.

On the top they should have a cast-iron coping, locking into the top of the uprights, which might either be let into blocks of stone at the bottom, or cast with a broad base to bury in the earth. The bottom row of slates should rest upon a range of bricks, or be let into a cast-iron bar, i. e. an upright laid flat, and not perforated, into which they could be rabbeted. Where sheds or houses of any kind were erected with these walls, the uprights might be fastened to the blocks of stone by three eyes cast in a bottom flanch, or in three lugs (ears), through each of which a large nail should be driven into a plug of hard wood driven into a jumper hole in the block of stone, as in *fig.* 49., in which *a* is the section, and *b* the plan. Two lugs, *c c* in *fig.* 50., would in general be all that would be necessary, as controlling the motion of the post in the only direction possible, viz. perpendicular to the plane of the wall. This is the way in which railway chains are fastened down, and it is an exceedingly effective and cheap mode.

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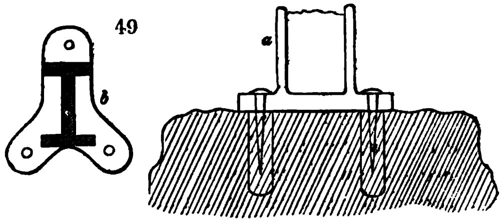

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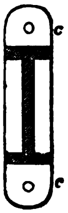
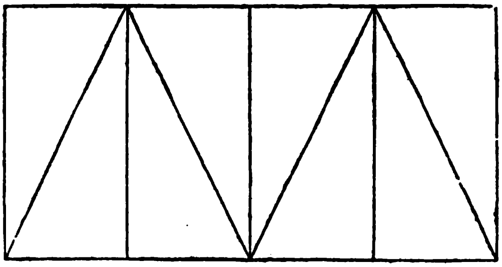


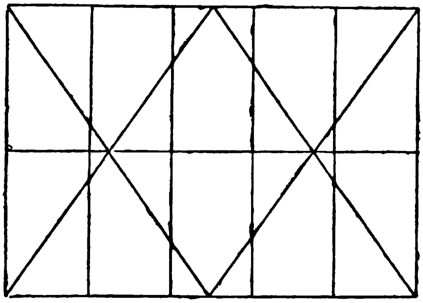
Two striking applications of such walls as these occur to me: first, that houses so built, having walls only one third the usual thickness, will have the advantage of larger apartments on a given ground plan, than those built in the ordinary way; an advantage not slight when ground is dear, as in large cities: and, secondly, that, by means of these cast-iron ties and uprights, walls of any magnitude may be built of such rigidity, that when built upon a bad foundation, even upon soft mud, they will subside *en masse*, and without shakes or cracks. For this purpose it is only necessary to divide the spaces between the uprights into primary triangles, as in *fig.* 51.,

51



which may be from 10 to 15 ft. high; *fig.* 52., which may be be from 20 to 30 ft. high; or *fig.* 53., which may be from 30 to 50 ft. high.

52



These walls might be applied to constructing docks, piers, and large edifices, in marshy ground or sand, of any breadth. Had the arsenal buildings at Woolwich been so built, even for the bottom story alone, they would not now be falling piecemeal asunder, and presenting to foreigners coming up the Thames so disgraceful a specimen of British engineering.

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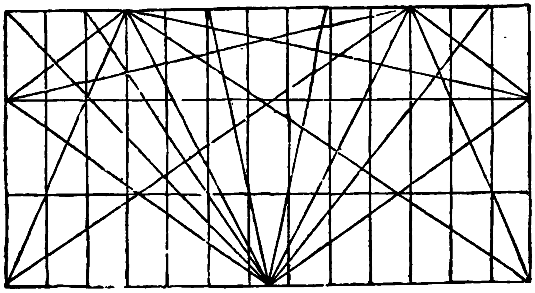

Perhaps the simplest edifice capable of being made in this way would be a garden shed, for tools or other such things. The uprights should be formed of T iron (so called), which is rolled for boiler-making, iron boat-building, &c.; the roof of straw, hay, pease or bean stalk, or faggot, stacks, supported on light castings, made to fit the upper extremities of the T iron uprights, as in *fig.* 54.; and the lower extremities of the uprights either driven into blocks of wood sunk in the ground, or wedged into holes punched in lumps of stone. The appearance of such sheds would be as in *figs.* 55, 56. and 57.

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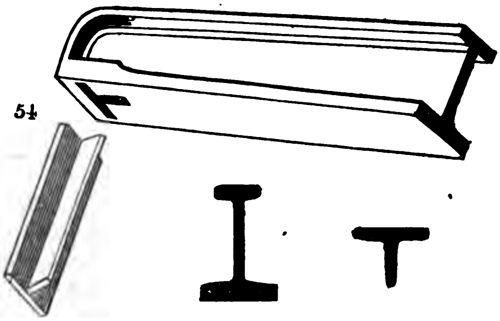

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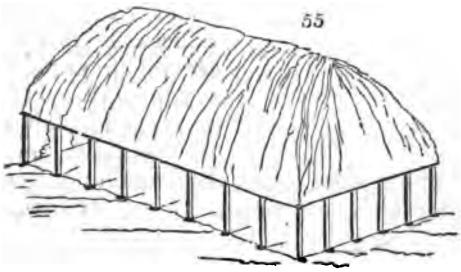

The circular form (*fig.* 57.) would be as easily built as a rectangular one, and would have great stability. When only pease-straw, or other litter, was stacked,

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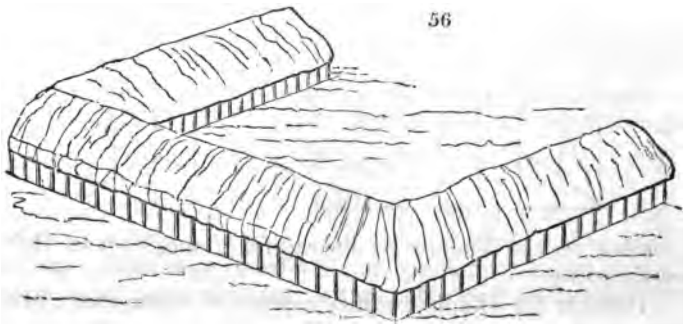

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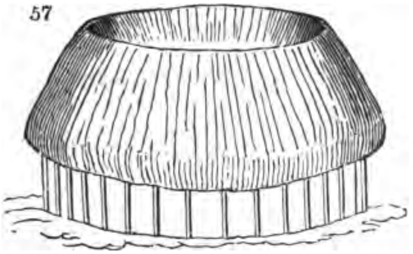

pigs, calves, &c., might be kept in such structures without injuring them. The circular form would in this case be the best.

But a more perfect structure of this kind may be erected, having a permanent roof, yet capable of sustaining, at any time, a stack of any kind; and I see no reason why all garden sheds, or even the buildings (or most of them) of a farmery, might not be thus flat-roofed, and so, in the latter case, answer the double purpose of buildings and rick-stands.

Supposing the walls constructed of cast-iron uprights secured firmly to foundation stones, and the intervals filled in any of the before-mentioned ways; the roof is to be constructed by laying light cast-iron beams or bearers, from one upright to another opposite it, and arching the interspaces with 4-inch arches. By these means the building will always be secured from the weather, whether the rick above be removed in part or not. Iron beams have hitherto been constructed generally from formulæ which make them much heavier than necessary. A late writer on this subject, Mr. Eaton Hodgskinson, has shown, and verified by experiment (vide *Trans. Manchester Phil. Soc.*), that, in place of the usual form and proportions of cast-iron beams, viz. the top and bottom ribs nearly alike in scantling, as in *fig.* 58., the bottom rib should be to the top rib in the ratio of 6 to 1; that the vertical or mid rib may be cast as thin as will insure a perfect casting; that the strength of such beams is inversely as the length, and directly as the depth, and not as the square of the depth, as hitherto supposed; and that the bottom rib should be formed into a parabola on its edges, terminating a few inches within the bearings.

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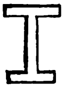
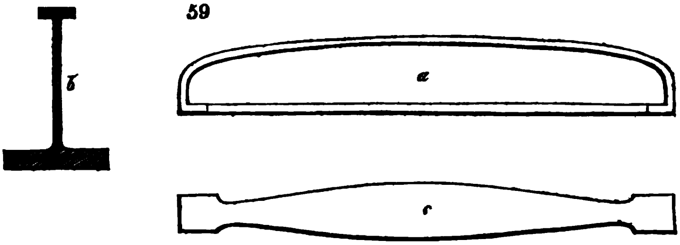


The formula for the determination of the ultimate strength and scantling of such beams, given by Mr. Hodgskinson, is: $W = \frac{c\,a\,d}{l}$; where W is the breaking weight; a the area in square inches of the mid section of the bottom rib; d the depth of the beam there; l the length of the beam in inches; and c a constant quantity deduced from experiment, equal, for beams cast on their sides, to 24; and for those cast vertical, to 25.

The form, then, of these beams is somewhat as in *fig.* 59.;

59



in which *a* is the side view, *b* the cross section, and *c* the plan of the bottom rib.

I have particularly mentioned these beams, from their novelty of form, and their importance, as saving nearly one fourth part of iron; in other words, 75 tons of iron will bear as much in this form as 100 tons in the common ones.

Such beams, then, suited to the weight to be borne, and the length of the beam, &c., would support 4-inch brick arches; the haunches of which should not be filled up, but spandril walls built across, at certain intervals, level with the crowns of the arches, and there built open. Thus ventilation would be permitted between the rick and its support; and, when the roof was uncovered, would conduct the rain off.

Such arches should be turned in summer, and two or three coats of coal tar given to the extrados surface, by which they will be made watertight. I have constructed many such roofs as these, for various purposes, and they have been found to be light, cheap, strong, and staunch.

All buildings thus constructed would obviously be fire-proof, and would last an indefinite length of time. The appearance of a tool-house so constructed will be as in *fig.* 60.

Sheds of this kind may be used for storing any garden or field produce, however damp: no matter what is stacked above, as no evaporation will permeate the roof.

The shorter the bearings of the beams of the roof (I call them beams, although, in most instances, they would be very slender), the greater will obviously be the saving of metal: for most purposes, 7 ft. or 8 ft. from post to post will be sufficient.

The appearance of such buildings might be much improved by a kind of cornice of two projecting courses of bricks round the tops of the walls. Corrugated iron might also be used for such flat roofs, arranged in ridges or arches from beam to beam; and the upper ribs of the beams might be hollowed to carry off the rain.

So much for these roofs and walls. All I have written

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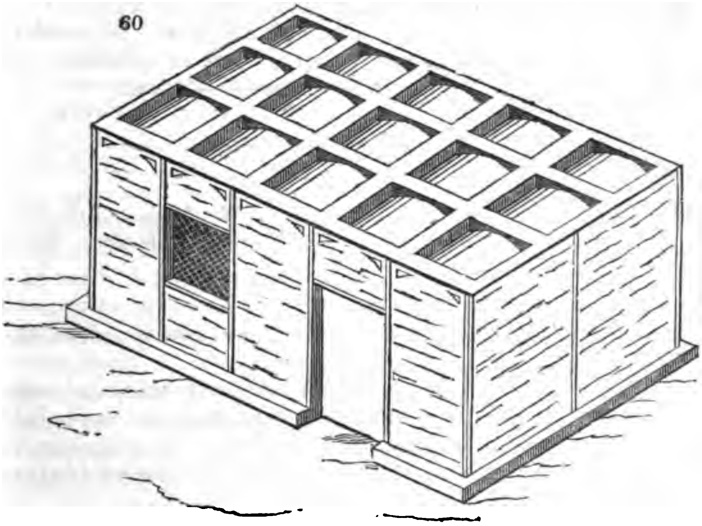


about them you will consider more as hints to work upon, than as any thing more valuable.

I am, Sir, yours, &c.

94. *Capel Street, Dublin, Dec.* 1832. ROBERT MALLET.

SINCE we received the above communication, Mr. Mallet has sent us another (which we have forwarded to the *Mechanics' Magazine*); by which we find that, to his numerous other inventions, he has just added a most beautiful and most important one, viz. that of splitting all stones that can be separated into laminæ, by the application of male and female screws, instead of blasting, as heretofore, with gunpowder. The process is as follows: — Jumper holes are formed in the direction of the proposed fracture, as at present; but, instead of filling them with gunpowder, a split female screw is inserted in each hole, and the fracture is effected by the insertion of conical male screws. The success of this mode was proved before the Commissioners of Public Works at Dublin; and the advantages which would result from it, if it were generally adopted, are so great as scarcely to be foreseen. Not only all risk of accident from the blasts would be avoided, but the operation would be performed more cheaply, and, from its slowness, incomparably better. What can be clumsier than separating slate or other rock, for useful purposes, in such a manner as to reduce at least half of it to useless fragments? We congratulate our esteemed friend Mr. Mallet on his having made so important a discovery. We recommend our readers to refer to the article, which will be found in the *Mechanics' Magazine*, vol. xviii.; and which will be read by all friends of humanity, and by all owners of quarries, and coal or other mines, with intense interest. — *Cond.*

Art. IX. *Reply to some Remarks made by Mr. Main and the Conductor on Mr. Perkins's Mode of heating by hot Water.* By A. M. Perkins, Esq.

Sir,

I beg, without preface, to answer your correspondent Mr. Main (p. 34.), by stating certain facts.

The first objection which I shall notice is, that, in consequence of the extreme smallness of the tubes, and very small quantity of water, the apparatus cannot have that equality of heat so desirable during night, when the fire is most likely to be neglected.

I shall answer this objection by referring to the specification of my patent, which describes a furnace of fire-brick, so constructed as to contain sufficient fuel for any specified time; and so capable of regulation, that the most equal temperature may be maintained for any number of hours required.

The apparatus which I first erected was at the villa of J. Horsley Palmer, Esq., at Fulham. This gentleman very liberally tried the first experiment on his own hot-house; and has, with equal liberality, allowed me to make use of his name to promote the spread of the invention. I therefore copy from his own memoranda, which he gave me at the time, a table that shows how completely the equality of heat was maintained in the hot-house for eight days and nights. A Sixe's differential thermometer was set at nine o'clock every night, and examined at nine o'clock the following morning; the fire was also made up, and not touched during the twelve hours. The result was as follows: —

1832.	Temperature in the open air.	Temperature in the hot-house.	Difference.
March 20.	47°	63°	16°
21.	45	63	18
22.	43	63	20
23.	38	63	25
24.	34	63	29
25.	38	63	25
26.	37	64	27
27.	38	65	27
		Average difference	23⅜

This table shows an average heat of about 23°; consuming, in the eight days, only 12 bushels of cinders, which cost 11*s.* per chaldron: being 3*s.* 8*d.* for the eight days, or 5½*d.* for each twenty-four hours. Another experiment was made just previously to the above, and the following was the result: — From the 4th of March to the 19th, inclusive, being 16 days, the average heat was 23°, and 18 bushels of cinders were consumed; which is a fraction more than 4*d.* per day.

The second objection is that which you state yourself as likely to occur; viz. that, after a time, the tubes will become lined with deposit, and difficult to heat. This I can also prove to be erroneous, as far as it is applicable to my apparatus, from reason and fact. The reason that my apparatus is not likely to fill up is simply this: that its principle of being kept closed in all its parts, so that no evaporation can take place, is diametrically opposed to the cause of deposit. This is strongly exemplified when any portion of water escapes through an imperfect joint; for, if the tube be hot enough to evaporate the water, the deposit will be precipitated on the outside of the tube; showing clearly that the lime or other matter which is in the water is held in solution until it escapes to the outside. In fact, we have circulated, for months, water completely saturated with salt, without any deposit being formed. Another fact, which I will state, will, perhaps, serve to remove your doubts, if any remain after the above explanation. I erected, in the show-room of Messrs. Ive and Burbidge, Fleet Street, last winter, an apparatus, consisting of 150 ft. of tubing, of the dimensions of only one fourth of an inch internal diameter, which has been at work ever since, without the least appearance of deterioration, either from oxidation, sediment, or otherwise. Were it necessary, I could mention many other instances; but I shall content myself with one.

One of Mr. Palmer's vineries contains an apparatus of 400 ft., of three-quarter tubing, which was kept in operation last winter for the purpose of forcing grapes. At the end of the winter we opened it, and found that not a drop of water had evaporated or disappeared in any way; and, upon washing it out, the water was as clear as when put in. I should observe here, that the apparatus was worked a few days before commencing to force; and that, then, all the oil and other matters, which necessarily adhere to the tubes during their manufacture, being taken up by the water, it was drawn off, and the pipes were washed out thoroughly by a common garden engine, in order that the experiment might be complete.

The third objection is, that the coil of tubes in the furnace, from their extreme smallness, must soon burn out; and the reason given is, that all tubular boilers heretofore have been liable to that objection. I will state the causes which occasion this effect, and then show why my apparatus is not liable to it.

The cause of the tubular boilers upon the evaporating and open-cistern systems burning out, is the want of some means of keeping the water in contact with the tubes which are exposed to the immediate action of the fire; for if the tubes have nothing but the weight of water and of the atmosphere to press upon them, the water will be driven out of the tubes by the superior tendency of the fire, when it burns with intensity, acting upon the tubes to repel it: and, thus, every every time the fire is brisk, the tubes get red hot, and very soon burn out. Now, my invention directly meets this defective point; for, as the apparatus is closed in all parts, no sudden heat can overpower the tendency of the water to circulate in contact with the tubes; for, if the heat is accelerated sufficiently to cause a tendency of the water to fly off, it meets with a reaction just equal to its action; and, therefore, it counteracts that tendency of the repellent power of heat in the same proportion. Thus, that which is a fatal objection to all tubular boilers with open reservoirs is to my system one of its greatest advantages; for it causes the heat to circulate more rapidly, and, consequently, to a greater distance, than can be done by any other system.

The fourth, and most serious, objection urged against my system is the liability of the pipes to burst. This I will meet openly and fairly; and I think I can prove that it is less liable to serious accident than the open-cistern system with a close boiler. I could mention a great number of facts respecting accidents from the open system; and one object of my improvement was to remedy such accidents. But one strong illustration, which I shall subjoin, will be sufficient to show that such an accident may occur even with an open cistern. I refer you to the letter of Mr. Carpmael, Patent Agent of the Patent Office, Lincoln's Inn. From this gentleman's letter, and the accompanying diagram, you will perceive how he exploded a boiler with an open reservoir, and the reason why it may and does often occur; the effect taking place upon the same principle on which low-pressure boilers are exploded. The means which my apparatus possesses of obviating this defect is, the power I have of making the tubes strong enough to resist any possible pressure. For instance, the present tubes which I make are proved to bear 3000 lbs. to the square inch: and when it is considered that, to acquire

300 degrees of heat, it is only necessary to resist a pressure of 60 lbs. or 70 lbs. to the square inch, it must be evident that there is sufficient room allowed for any thing extraordinary in the way of pressure. All the care that is necessary to make my apparatus perfectly secure against such accidents is, to prove it with a common hydraulic pump the last thing before setting it to work.

As some of my pipes have burst, and one, in particular, at the Guardian Fire Office, I think it right to explain how that occurred. When my apparatus was first erected in that office, which was last winter, the building was not finished; and the workmen, being anxious to dry the walls of the new building, set the apparatus at work before it was proved: and as it is almost impossible, in 1000 ft. of pipe, to make every thing perfect at first, so it was in this case; for, in giving the fire an unusual draught, the heat of the pipes was increased to an unprecedented extent; and the consequence was, that a pipe split in one of the empty rooms, and made a slit in the seam of the pipe about 6 in. long, and an eighth of an inch wide. Another pipe was immediately put in, and the apparatus proved: it has been at work ever since, to the perfect satisfaction of the committee.

This defect would be a serious evil, if I had not the means of remedying it by using stronger tubes, and having all my apparatus proved (previously to using) by the hydraulic press.

So confident am I now of the perfect safety of my apparatus, that I am ready to trust its erection to gardeners themselves; and have made arrangements for sending, to any part of the country, coils and tubes, with ample printed directions for erecting them, and managing them afterwards. This will reduce the cost of a hot-water apparatus to its minimum.

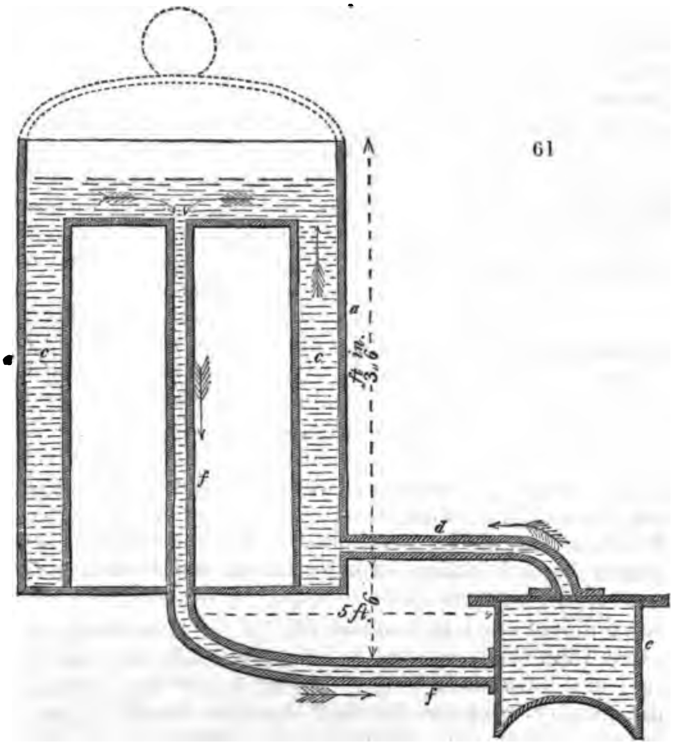
I am, Sir, yours, &c.

21. *Great Coram Street, Russell Square,* A. M. PERKINS.
Feb. 3. 1833.

THE above is a most important communication; and we are sincerely glad that the doubts which we threw out, in the note alluded to by Mr. Perkins, have elicited from that gentleman arguments so satisfactory, in proof of the fact that, as it is impossible for any deposit of matter held in solution by water to take place without evaporation, none can be deposited in his hermetically sealed tubes. — *Cond.*

The following is the letter referred to by Mr. Perkins, and addressed to him by Mr. Carpmael: —

" Dear Sir, — In answer to your enquiries respecting my having burst a boiler about two years ago, I now send you a sketch (*fig.* 61.) of the apparatus which was used; the object being to heat a small room. In the figure, *a* is an outer,



b an inner, vessel, leaving a space (*c*) between them, to be filled with water; *d* is the tube by which the water passes from the boiler (*e*) into the space (*c*); and *f* is the pipe by which the water returns to the boiler. By this description, and the course pointed out by the arrows, you will readily perceive the manner of the circulation. The vessel *a b* was to have a cover, as shown by the dotted lines; but, as the cover was not on at the time of the explosion, it may be put out of view in respect to your object. The apparatus had been up some days; and I was standing alongside of it, watching the circulation, when suddenly the water rose nearly to the top of the vessel (*a b*), showing that the boiler must have been emptied of all the water; and suddenly a slight explosion took place at the flanch at the top of the boiler, and a large body of steam issued from the boiler for some time; when, having damped off the draught, and thereby cooled the heat of the boiler, the water descended again into it, and flowed copiously.

"The only explanation I can give you of the cause of this accident is, that the fire-grate was considerably too large, the flue having a great draught; and the man had made a fire more than three times as large as was necessary. The consequence was, that the great heat thus produced generated steam faster than it was carried off by the tube *d*, and thus displaced the water from the boiler. This will explain the rising of the water in the vessel *a b*: and then, I conceive, a small quantity of water became suddenly converted into steam, and produced the explosion which opened the rivets.

"I am, Sir, yours, &c.
"W. Carpmael, Engineer.

"4. *Old Square, Lincoln's Inn, London,*
Feb. 1833."

Art. X. *Notice of a Method of heating by the Circulation of hot Oil, instead of hot Water, for which a Patent has been taken out by Mr. W. D. Holmes; and also of Dr. Ure's Method of employing Muriate of Lime as a Medium for communicating Heat.* By the Conductor.

Our readers may have observed, by our advertising sheet, that Mr. Holmes is employed in heating hot-houses and other buildings by hot water; and that he refers to a number of dwelling-houses, and to the hot-houses of Messrs. Allen and Rogers, in their nursery, Eaton Square, Pimlico, as specimens of his work. We have examined the hot-water pipes on the premises of Messrs. Allen and Rogers, and find that they answer as well as those of Messrs. Walker, and others, who heat on the same plan, viz. that of a close boiler. Mr. Holmes, we find, heats his water in cast-iron tubes, somewhat in the manner of Chabannes and Mr. Weeks.

The object of the present notice is to call the attention of gardeners to the principle of heating by the circulation of fluids which boil at a higher temperature than water; and which, of course, can convey a higher degree of heat to a greater distance than can be done by water in open vessels or tubes. Mr. Holmes proposes to employ oil: an idea which was first, we believe, suggested by the late Mr. Tredgold.

The mode of circulating oil differs in nothing from that of circulating water; but oil differs in this, that, at a certain temperature, it becomes carbonised, and in that state is most liable to ignite. We consider it, therefore, to be an extremely dangerous fluid to employ as a medium for conveying heat. We recollect, some years ago, an attempt was made to boil sugar by heated oil; when an alarming explosion took place, that was noticed, at the time, in all the newspapers. Were it not for this danger, oil would, no doubt, answer admirably, both for boiling sugar and heating bakers' ovens; because it will convey, in an open vessel, from 300° to 400° or upwards of heat.

Mr. Holmes informs us that he has only, as yet, heated one small oven in this manner, which answered perfectly. It was not in operation on the day when we called to see it; but Mr. Holmes is now constructing an apparatus on a much larger scale, which, when completed and in action, we shall examine, and report on to our readers.

A safer fluid for conveying a high degree of heat in tubes not hermetically sealed is muriate of lime, now most successfully applied, by Dr. Ure, for boiling sugar. We had an opportunity lately of examining the whole of this process, which was most lucidly explained to us by Dr. Ure; and we are satisfied that all the bakers' ovens in London might be heated on the same principle as the sugar-boiler which we saw, with immense advantages both to the bakers and to the public. We do not, however, think it applicable to the heating of hot-houses under ordinary circumstances, which is a sufficient reason for the brevity of our remarks. We have shown, in our *Encyclopædia of Cottage Architecture*, how much has been done by Mr. Hicks in the construction of ovens, and in the production of an excellent and cheap bread; and also how much reformation is wanted in the formation of the common ovens of the bakers.

ART. XI. *On the Construction of Fountains for Gardens.*

By the CONDUCTOR.

WATER, Switzer observes, is "the very life and soul of a garden," whether it be the ground plot of a suburban cottage, or the embellished lawn of an extensive villa. Two centuries ago, when picturesque beauty and botanical interest were little attended to in the gardens of Europe, fountains and architectural decorations were sought after as the grand sources of interest; and one garden was distinguished from another by the expense which had been incurred in its waterworks, and in its mural and sculptural appendages. For the last century the construction of waterworks has been on the decline; and, in proportion as they engrossed too much attention before, they have, during that period, been comparatively neglected.

The manufacture of artificial stone has contributed to the revival of this taste, by the facilities which it affords of forming elegantly shaped basins, and different forms of drooping or natural fountains. By natural fountains we mean those in

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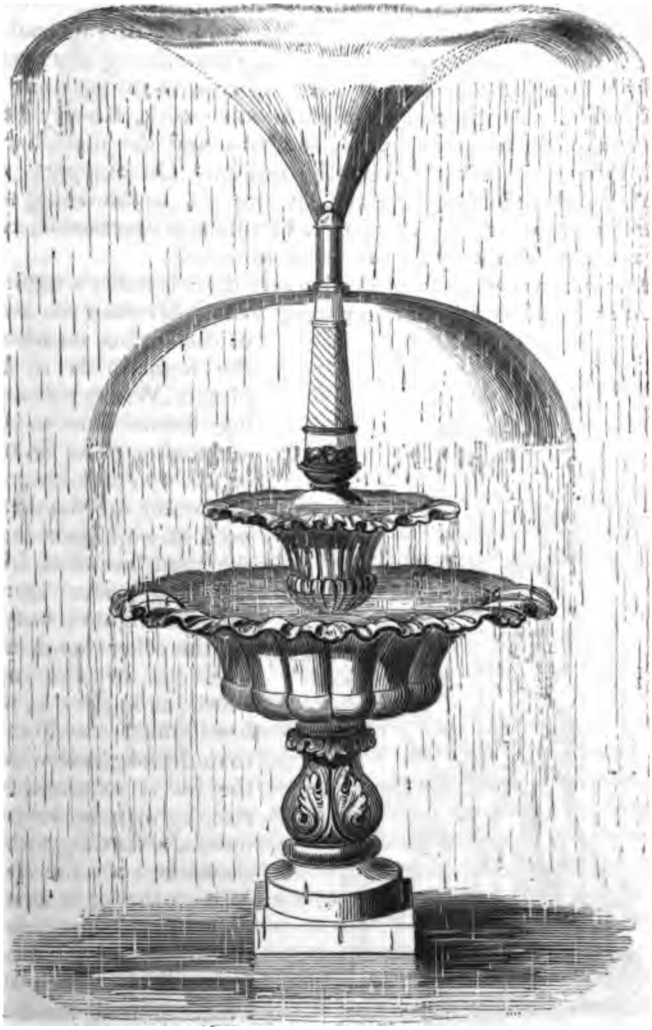

which water is conveyed to a height, and then left to trickle down over an ornamental form, such as the lower part of fig. 129. Vol. VII., as opposed to artificial fountains, in which water is forced to spout up vertically, as in the upper part of the same figure, and in fig. 42. of Vol. VIII. Another circumstance favourable to the construction of ornamental fountains is, the facility with which iron can now be cast into the most beautiful shapes, at a very moderate expense. With the artificial stone of Austin, or the kiln-burnt artificial stone of Coade and Seeley, which is as durable as the hardest marble, with cast-iron shafts and jets, and with iron or leaden pipes, there is now no difficulty in constructing the most beautiful garden fountains at a trifling cost, in the grounds of every villa. Austin will supply the stonework, Rowley (the inventor of the fountain *fig.* 62.) the pipes and the machinery, and Gray of the Colosseum the design. On our part, we shall chiefly confine ourselves, at present, to showing the situations in which the erection of fountains is practicable, and the manner of conveying the water to them.

A fountain may be formed wherever there is either a natural or an artificial supply of water some feet higher than the level of the surface on which the fountain is to be placed. Where a drooping fountain is to be adopted, such as *fig.* 63. or *fig.* 64., the level of the water in the head need be no higher than the joint at which the drooping water issues from the figure; but if, on the other hand, the water is to rise upwards, as in *fig.* 65., the head must be higher than the height to which the jet is expected to rise, by at least several inches, according to the diameter of the jet. Where the jet is small, say an eighth of an inch, the height of the head above it, provided the water in that head be

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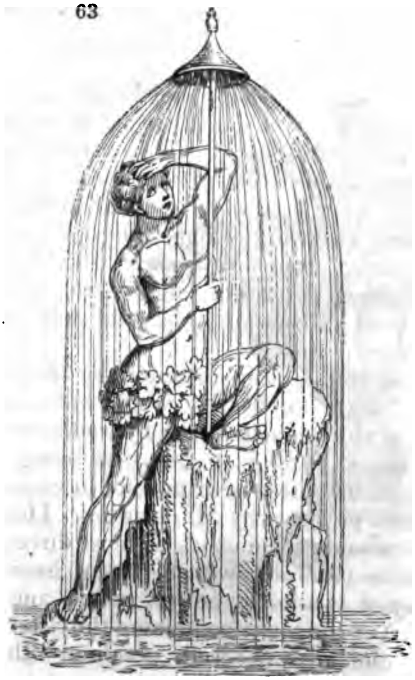

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always kept to the same level, need not be above six inches; but, as it is seldom practicable to keep the head to the same level, it is better to have the bottom of the pond or cistern sufficiently high to effect the desired object; in which case, so long as there is any water in the cistern at all, the jet will rise to the proper height.

Where a natural head of water of the proper height cannot be obtained, recourse may be had to artificial means of raising water to an elevated cistern or reservoir. This cistern may either be placed on a natural or artificial eminence, or on the summit of a building. In pleasure-grounds, an artificial mount, or piece of conical rockwork, would afford a good situation; and a simple tower, round or square, is also at once a cheap mode of elevating a cistern, and of adding to grounds an ornament, which, if not very beautiful, can yet never be considered mean or paltry.

The water may be raised to the basin or cistern so placed, by forcing-pumps worked by men, horses, wind, water, or steam; or by that very ingenious machine, the hydraulic ram, which we have before noticed (Vol. V. p. 594.) as being in use at Bury Hill; and which has lately been put up, in various parts of the country, for this purpose, by Mr. Rowley. However, the mode which we would recommend, as most directly applicable where there is no natural power, is that of having a small steam-engine, say of two-horse power, which might be placed in the lower part of the tower containing the cistern, or in any convenient situation near the well, pond, or other source of supply, and set to work once or twice a week, as occasion might require. A horizontal windmill, so disguised in the tower as not to be an offensive object, would, in all elevated situations, as we have elsewhere observed (*Encyc. of Cottage Architecture*, § 1256.), be the cheapest and best that could be employed; because it would require little or no attention, and might be left to itself, to work or stand still, according to the wind. The construction of such a windmill is exceedingly simple, and no man that we know is more fit to carry the design into execution than Mr. Thorold of Norwich. In some situations, where there is no other employment for the poor, it might be an act of charity to set them to work on a machine for raising water for this and other purposes, though we would not be understood to recommend, as a general principle, such a misapplication of human labour. Whatever can be done by a machine ought never to be attempted by man.

In conducting the water from the cistern or reservoir to the jet or fountain, the following particulars require to be attended to: — In the first place, all the pipes must be laid sufficiently deep in the earth, or otherwise placed and protected, so as to prevent the possibility of their being reached by frost; next, as a general rule, the diameter of the orifice from which the jet of water proceeds, technically called the bore of the quill, ought to be four times less than the bore of the conduit pipe; that is, the quill and pipe ought to be in a quadruple proportion to each other. There are several sorts of quills, or spouts which throw the water up or down, into a variety of forms; such as fans, parasols, sheaves, showers, mushrooms, inverted bells, &c.; or (and which is one of the newest forms) the convolvulus of Mr. Rowley, as shown in *fig.* 62. The larger the conduit pipes are, the more freely will the jets display their different forms; and the fewer the holes in the quill or jet (for sometimes this is pierced like the rose of a watering-pot), the greater certainty will there be of the form continuing the same; because the risk of any of the holes choking up will be less. The diameter of a conduit pipe ought in no case to be less than an inch; but, for jets like those in the preceding figures, the diameter ought to be two inches; and, for the number of jets shown in *fig.* 66. (which is an old rustic Dutch form, of easy execution in flints and cement, the basin being of earthenware), two inches and a half, or three inches, will be found requisite. Where the conduit pipes are of great length, say upwards of 1000 feet, it is found advantageous to begin, at the reservoir or cistern, with pipes of a diameter somewhat greater than those which deliver the water to the

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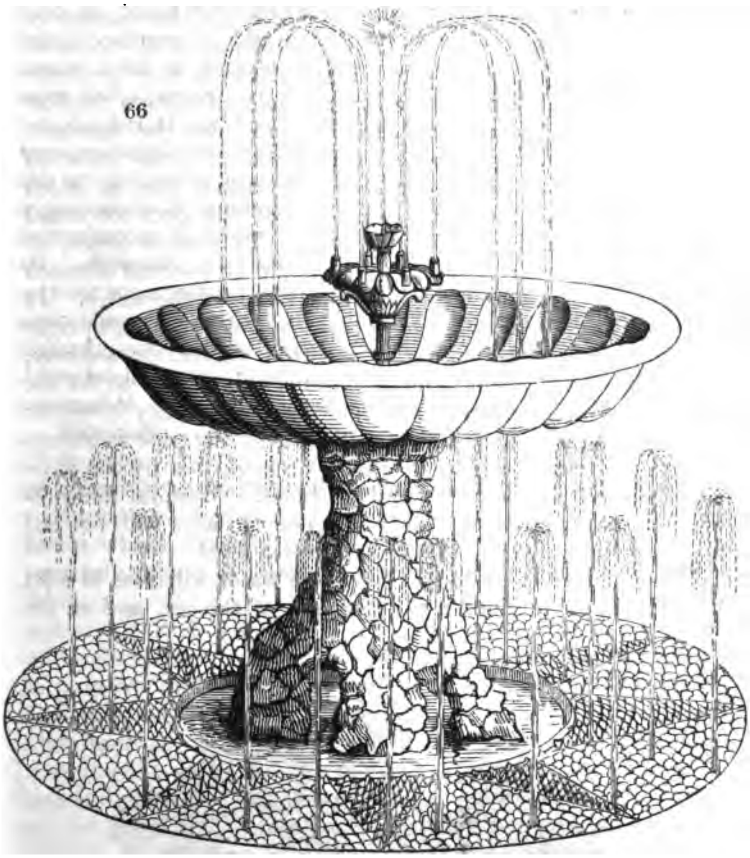

quills, because the water, in a pipe of uniform diameter of so great a length, is found to lose much of its strength, and become what is technically called sleepy; while the different sizes quicken it, and redouble its force. For example, in a conduit pipe of 1800 feet in length, the first 600 feet may be laid with pipes of eight inches in diameter, the next 600 feet with pipes of six inches in diameter, and the last 600 feet with pipes of four inches in diameter. In conduits not exceeding 900 feet, the same diameter may be continued throughout. When several jets are to play, in several, or in the same fountain, it is not necessary to lay a fresh pipe from each jet to the reservoir; a main of sufficient size, with branch pipes to each jet, being all that is required. Where the conduit pipe enters the reservoir or cistern, it ought to be of increased diameter, and the grating placed over it ought to be semiglobular or conical; so that the area of the number of holes in it may exceed the area of the orifice of the conduit pipe. The object is to prevent any diminution of pressure from the body of water in the cistern, and to facilitate the flow of the water. Where the conduit pipe joins the fountain, there, of course, ought to be a cock for turning the water off and on; and particular care must be taken that as much water may pass through the oval hole of this cock as passes through the circular hole of the pipe. In conduit pipes, all elbows, bendings, and right angles should be avoided as much as possible; since they diminish the force of the water. In long conduit pipes, air holes, formed by soldering on upright pieces of pipe, terminating in inverted valves, or suckers, should be made at convenient distances, in order to let the air out. Where pipes ascend and descend on very irregular surfaces, the strain on the lowest parts of the pipe is always the greatest; unless care is taken to relieve this by the judicious disposition of cocks and air holes. Without this precaution, pipes conducted over irregular surfaces will not last nearly so long as those conducted over a level.

The perpendicular height to which water will rise in a jet has a limit, depending on the diameter of the jet, and on the

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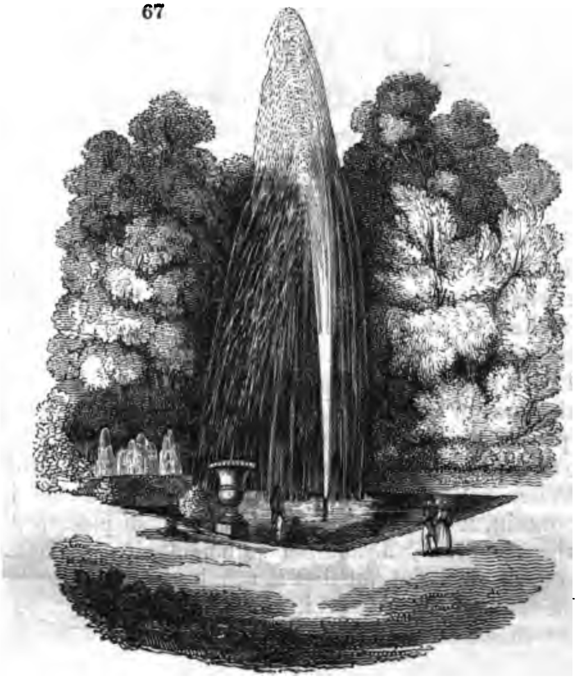

specific gravity of the water and on that of the air which it has to penetrate. A jet of salt water will rise higher than one of fresh water; a column six inches in diameter higher than one of three inches; and a jet of water of any dimension higher at Madrid or Munich than in Paris or London, on account of the difference of the elevation of these cities above the level of the sea. The most powerful garden jet in Europe is that in the Nymphenburg gardens, near Munich. The water is there forced by the direct influence of machinery, without the intervention of a head or reservoir; and it is found that a column of six inches in diameter cannot, even there, be raised higher than ninety feet. A similar column, at St. Cloud (*fig.* 67.), is said not to rise higher than sixty or seventy feet. It must be recollected that water boils at Munich at 209°; whereas at St. Cloud it requires 212° to effect ebullition.

Thinking it most desirable to attempt to revive the taste for fountains in garden scenery (not, indeed, the childish baubles of the middle ages, when the object was to surprise or frighten the spectator, or probably to wet his clothes, but those classical forms which characterise the modern fountains of Italy, and especially those of Rome), we here present two designs:

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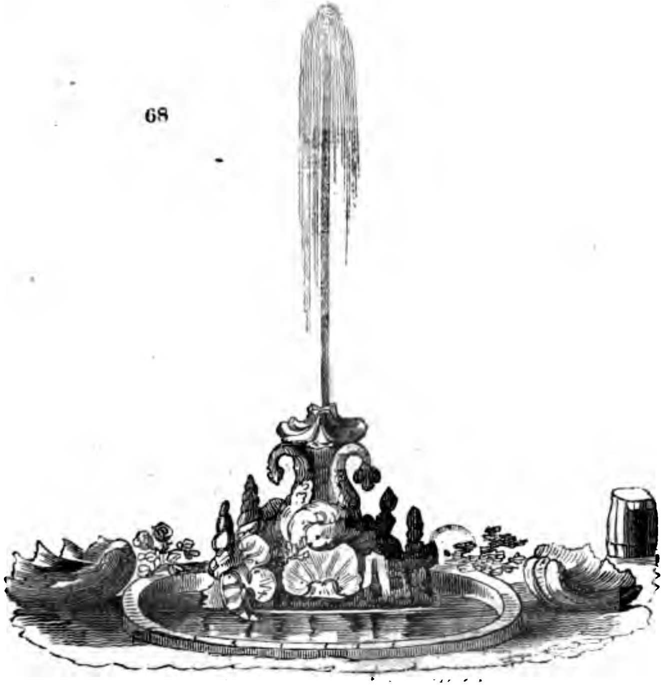

fig. 68. is a shell fountain erected in the gardens at White Knights, and which in 1826 appeared to us to have an excellent effect. *Fig.* 69. is the composition of a talented young architect, Edward Buckton Lamb, Esq.; it may be formed of cast iron, like that of Mr. Rowley, and the wall of the lower basin may be of granite or marble. The Mona marble, from its hardness and unfitness for more delicate purposes, is particularly suitable. We invite all our readers, but more especially landscape-gardeners and garden architects, to cooperate with us, by sending us additional designs with discussions on their erection and effect. We are persuaded that, if the business were properly engaged in, there need not be a

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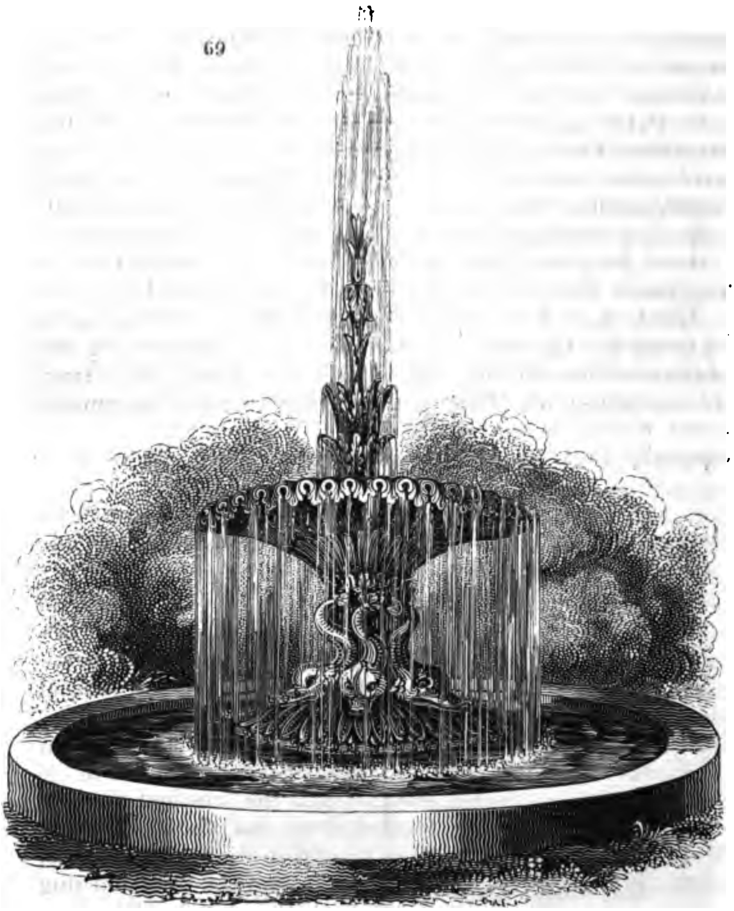

pleasure-ground in England without water in some ornamental form, where that element is desirable, and this, too, at a very moderate expense. It is astonishing that, in some of the magnificent seats in Britain, where hundreds of thousands have been laid out on the house, and where water has been entirely wanting, or in a bad situation, not a shilling has been expended on procuring it artificially. There is no place we know that would gain so much by an artificial lake as Ashridge Park, and none more in want of fountains near the house than Eaton Hall; and yet there is not a glimpse of water in the one case, nor the simplest fountain in the other, notwithstanding the sumptuousness of the palaces at both places, and the immense wealth possessed by their owners.

Mr. Austin has done much to introduce a better taste in the forms of fountains for garden decoration, of which fig. 129. of Vol. VII., and fig. 42. of Vol. VIII. may be offered as a proof; as fig. 62. may be referred to as a specimen of the ingenuity of Mr. Rowley, who is, like Mr. Austin, Mr. Gray, Mr. Lamb, and Mr. Thorold, every way worthy of patronage.

ART. XII. *Notice of a new Method of transplanting large Trees, invented by Mr. James Munro, Manager of Messrs. Dickson and Turnbull's Nursery, Brechin.* By the CONDUCTOR.

THE first account of this mode appeared in the *Quarterly Journal of Agriculture* for March last. Immediately on observing the article, we wrote to Mr. Munro for further particulars; and, from his letter of March 11th, and the journal referred to, we have drawn up the following notice: —

During the winter of 1824, having occasion to transplant a number of trees, and being dissatisfied with the mode of preparation by opening a trench round the tree and filling it with loose soil, Mr. Munro selected an oak about 25 years old, large for its years, and prepared it in the following manner: — He formed a circular trench round the tree, and dug out the earth; but, instead of filling the trench with loose mould, he left it empty, and roofed it over with boards, covering over any opening between them with withered grass, and then putting over the whole one inch deep of earth. The tree remained a year in this state, and was transplanted in the winter of 1825. On reducing the ball of earth to proper dimensions for removing the tree, the old roots were found furnished with fibres, matted sufficiently to retain enough of earth to protect them during removal. The object which Mr. Munro had in view was, instead of encouraging the growth of fibres at the extremities of the amputated roots, as is done when the trench is filled in with loose soil, to have them formed within the ball of earth, and not on the outside of it. This he considered would enable him to remove the tree with a ball, which he never could accomplish by the other method, though he had practised it for five years, on from three to five hundred trees annually. When the trench dug round the tree is filled with loose earth, the young roots form in clusters round the ends of the old roots, and the tree on removal generally loses the whole of the earth which formed the ball.

Mr. Munro only tried his plan on one tree, and soon afterwards left that part of the country. We hope some of our readers will repeat the experiment on a more extensive scale, and let us know the result. They have only to bear in mind the object in view, viz. that of creating a number of fibres in the ball, to keep the earth from falling away from the roots when the tree is taken up for removal. Of course, when a tree with a large top is prepared in this manner, it must, unless it be in a very sheltered situation, be supported by stakes, to prevent it from being blown down by high winds.

Art. XIII. *A new Arrangement of the Double-flowered Chinese Chrysanthemums, with an improved Method of Cultivation.* By A. H. Haworth, Esq. F.L.S. &c., Author of "Synopsis Plantarum Succulentarum, Narcissinearum Monographia," &c.

Sir,

I have the pleasure of sending you, hereunder, a new arrangement of double Chinese chrysanthemums, for insertion, if you please, in an early Number of that interesting and useful publication, the Gardener's Magazine.

To the new, and, I hope, improved location in my distribution of these fine and much favoured plants, are added some brief but characteristic descriptions of their size, time of flowering, and appearance of their flowers; together with an epitomised method of the management, soil, and cultivation they require. And they are well worthy of all the care and attention we can bestow upon them; being not only at present one of the finest hardy herbaceous groups in the flower-garden, and remaining with us in bloom by much the latest; but they will hereafter, through the medium of their very sportive seeds, become far more numerous, more various, more beautiful, and more attractive than ever.

Seven years have passed away since any published information has been added to our knowledge of these hardy and conspicuous flowers; the last account, as far as the writer can find, being that given by Mr. Sabine, in the *Transactions of* *the Horticultural Society*, vol. v. p. 322. &c., dated Jan. 1826; in which 48 species or varieties are enumerated, but without any sections, divisions, or subdivisions whatever, and with insufficient attention to their natural affinities; which renders it very difficult for any one, and more especially a tyro, to appreciate and understand them sufficiently. Wherefore I send you, hereunder, what I conceive to be an improved and more natural arrangement of them, nearly as far as known to me; referring them to, and identifying them with, Mr. Sabine's varieties in every instance, as far as practicable, and likewise to published figures wherever I have been able to find any.

I possess, alive, several other reputed varieties; but these, at present, I refrain from mentioning, hoping to describe them more completely another year, when I may know more about them, and be better able to appreciate their characters. There have also very recently been raised, and flowered, various seedling varieties, which were exhibited at the December meeting of the Horticultural Society of London, which were chiefly obtained from seeds of the Early Blush, the Early Crimson, and the Two-coloured Red. These, however, I must abstain from further mention of at present.

There have been various methods recommended for the cultivation and propagation of these showy plants, and that by cuttings in May is now almost universally adopted. But I do not approve of this for strong fibrous-rooted, hardy herbaceous plants with late autumnal blossoms; for critical time is lost by the delay of striking the cuttings; and, if they are accelerated by heat and glass, they are (more than any other plants) debilitated, weakened, and dwarfed, and often lose their lower leaves by the time their flowers are open, having a faint and sickly appearance, instead of the vigorous growth of such roots, if annually parted and transplanted like perennial asters or other hardy perennial plants.

I recommend their voracious and very fibrous roots to be parted in autumn, or early spring, and planted in very rich manured light soil, at the foot of a south or west aspected wall, with not more than one, two, or three branches from each root, trained to the wall as regularly and as thinly as a peach tree, cutting off all superfluous shoots and weak lateral flower-buds.

They must, when planted, be watered in the usual way, and afterwards, all over their leaves, with a fine rose watering-pan, lightly, as a fine slight shower, as often as their foliage flags, quailing to the beams of a powerful sun, which will sometimes be three times a day in the hottest weather. This will quickly re-erect their drooping leaves, without scorching or blistering them, and cause these uncommonly slow-growing plants to advance with a degree of comparative rapidity that is as pleasing as it is surprising, and their leaves will become twice as large as when treated in the usual way. The size of this foliage, too, as in bulbous and most other plants, will indicate the increase of size also in the expected but as yet invisible flowers; although in Succuléntæ, and more especially in *Ficoïdeæ*, I should expect the reverse.

Thus treated, these conspicuous plants will reach the height of 3 or 4 ft. in the smaller sorts, and that of 7 and 8, at least in the tallest kinds, terminating in abundant and most beautiful flowers, many of which will far surpass 5 in. in expansion, and with almost every colour, except deep scarlet and the tints of blue.

But other aspects than the south or west, and even the open borders in very favourable seasons, will suit the greater part of these plants, near London, tolerably well, and enable them to open their flowers, though much later and smaller than those against a south-aspected wall, where they will expand every season; and, if properly blended as to colour, at the middle and end of every November, they are capable of making a more showy and magnificent appearance of flowery beauty, richness, and elegance, than I ever beheld in any other group. The duration of their hardy flowers is likewise greater than that of other autumnal plants, both as to individual blossoms, and in the lateral successional ones, and even when cut for bouquets and placed in vessels of water; one plant of the old purple, in my garden, having had flowers from the beginning of November last, to the second week in the present January. But the earlier they can be made to come into blossom, by open-air treatment (for all forcing irretrievably weakens them), the better, and the longer will be their duration, and the finer their soft but agreeable chamomile scent.

Notwithstanding these deserved eulogies, Chinese chrysanthemums have not hitherto ranked with the true flowers of the florist, because, however well formed, in many of the varieties, they are all, save the Gold-bordered Red, of self or uniform colours; and the florist requires yet another colour or colours to be distinctly depicted upon the first or ground colour of every petal, to constitute his favourite flakes, bizarres, and picotees.

This grand desideratum in Chinese chrysanthemums will, however, be finally accomplished through the seeds of well-formed half-double or double flowers, particularly those of my first section, called ranunculus-flowered; one of that section, the above-mentioned Gold-bordered Red, having already a fine form, and the rudiments of a flaked flower; its broad-edged border, base, and tips, often leaving, when well blown, a comparatively huge single flake of red in the central length of every petal. We must try the seeds, whenever we can procure them; and their unequalled sportiveness will reward us for the trouble of rearing them, by countless numbers of new forms, faces, and colours, surpassing all we at present know.

The sports of colour in the flowers, by casual branches from old plants, are well known, and capable of being propagated and perpetuated; and I shall notice them in my arrangement below, in every instance, as far as known.

In closing this paper, I beg leave to return my grateful thanks to the following gentlemen and nurserymen, for living roots of nearly the whole of the plants which compose this paper; who, on hearing I was studying Chinese chrysanthemums, generously offered me any part of their nearly complete collections, which I thankfully accepted: —

The Rev. Mr. Ellicomb, Bitton Vicarage, near Bristol; Mr. Ingpen, Wellesley Street, Chelsea, who has nearly a complete and well-named collection; Mr. Tate, nurseryman, Sloane Street, Chelsea; and Mr. Dennis, nurseryman, King's Road, Chelsea, who has very nearly a complete and accurately named collection.

I remain, Sir, yours, &c.

Chelsea, Jan. 1833. A. H. HAWORTH.

A new Arrangement of Double-flowered Chinese Chrysanthemums.

* RANUNCULUS-FLOWERED.

1. *Yellow Indian*, Hort. Trans. v. 4. p. 330. tab. 12. and v. 6. p. 346. Of short stature (in its group), with very late and double, but small, flowers; and forms, with the next, a distinct species.
2. *White Indian*, Hort. Trans. v. 6. p. 347. Shorter than the preceding, with very late and similar, but white, flowers.
3. *Warratah Yellow*, Hort. Trans. v. 6. p. 344. Flowers very late, with the preceding, and of similar size, but has much more entire leaves, and larger flowers, which make it a distinct species.
4. *Spanish Brown*, Hort. Trans. v. 4. p. 486. and v. 5. p. 420. Of short firm stature, and rather early and beautiful flowers, the size of the preceding, and with smallish leaves a little more pinnatifid, and probably a distinct species.
5. *Blush Ranunculus-flowered*, Hort. Trans. v. 6. p. 328. Of short firm stature, and fine-formed early flower, of a blush colour, and peculiar neatness of form. I think I have two variations of it.
6. *Small Deep Yellow; Park's Small Yellow*, Hort. Trans. v. 6. p. 327. Taller and weaker than the last, early and small-flowered, with small and blunt pinnatedly-lobate leaves. Perhaps it may be a distinct species, from its small leaves and flowers.
7. *Small Pale Yellow; Small Windsor Yellow*, Hort. Trans. v. 5. p. 415. and v. 6. p. 335. Also called Aiton's Yellow. Of short stiff growth, and early flowering, and but little merit.

8. *Small Flat Yellow; Small Yellow*, Hort. Trans. v. 5. tab. 17. and v. 5. p. 422. Of shortish growth, and with pure yellow and expanded early flowers, the shape and size of the three subsequent varieties, of which it is presumed to be the origin, as yellow is the most predominant colour in these plants. Their forms are very neat and regular.

9. *The Buff, or Copper*, Hort. Trans. v. 5. p. 420. Also called the Orange, or Buff. Resembles the preceding in every thing but colour.

10. *The Rose, or Pink*, Hort. Trans. v. 4. p. 344. Also called the Lilac. Resembles the last in all things but colour, and is now the most common kind in cultivation, although introduced after the old purple, hereunder enumerated.

11. *The Pale Pink*, Hort. Trans. v. 6. p. 336. Raised in Mr. Colvill's nursery, being a sportive branch from the last, and differing in nothing but colour. This and the three preceding doubtless sport mutually into each other, and are perpetuated by cuttings of their respective sports in the first instance, and offsets as well as cuttings afterwards; but are all liable to sport again, from pale pink through deeper pink, and copper or light orange to bright yellow: but their shoots and leaves are immutable.

12. *Expanded Light Purple*, Hort. Trans. v. 5. p. 153. and v. 5. p. 421.; and Bot. Mag. tab. 2256. Of middling size, and with flowers in the middle season (of its group), but nearly twice as large as the last, though resembling it in form, and far more handsome.

13. *Quilled Light Purple*, Hort. Trans. v. 5. p. 155., and v. 5. p. 421. A sport only from the last, but now made permanent.

** INCURVING RANUNCULUS-FLOWERED.

14. *Incurving Lilac*, Sweet, Brit. Fl. Gard. tab. 7.; *Curled Lilac*, Hort. Trans. v. 5. p. 155. and p. 421. Also called the Quilled Lilac. Grows tall, and flowers early, and is an elegant plant, allied to the preceding, and has produced the following one from a sportive branch.

15. *Curled Blush*, Hort. Trans. v. 6. p. 326. Has been called the Double Blush, and Double White. The flowers, which are rather early, large, and showy, dying off nearly of that colour. It is of middling stature in its group; and, although a sport only of the preceding, is now an established and more beautiful variety than it.

16. *The Quilled Pink*, Hort. Trans. v. 4. p. 350. and v. 5. p. 351. 420, 421.; and Bot. Reg. v. 8. tab. 616. Of tall stature, and one of the very latest in blooming; but very handsome, and repaying by its beauty every care bestowed upon it by the gardener. It has been called the most beautiful of all; but with me it yields to the Gold-bordered Red.

17. *Large Quilled Orange*, Hort. Trans. v. 5. p. 152. tab. 3. (upper figure), and v. 5. p. 421. A tall and large latish-flowering variety, of considerable beauty, and at present uncommon.

18. *Gold-bordered Red; the Two-coloured Incurved* of Hort. Trans. v. 6. p. 332, 333. Of tall stature, very late, with the most perfect and beautiful flower of all its genus, although only of the middle size. The red petals are striped with gold beneath, and golden-tipped there; which tips, incurving strongly and gracefully, show the gold in a front view of the flower, which is golden likewise at its base within. I consider it the most complete of all.

19. *The Superb White*, Hort. Trans. v. 4. p. 338. and v. 5. p. 420. A late, very tall, and splendid plant, with large, incurving, very double, pure white flowers.

*** CHINA-ASTER-FLOWERED; often showing a disk, and then much resembling China Asters.

20. *The Sulphur Yellow*, Hort. Trans. v. 4. p. 351. and v. 5. p. 420. A beautiful variety, of tall stature, and free and early blooming, with middle-sized aster-like flowers.

21. *The Two-coloured Red*, Hort. Trans. v. 6. tab. 4. and v. 6. p. 340, 342. A very fine and showy variety, of the middle size in stem and flowers, but rather late, which sometimes shows a disk, and is then very aster-like. The bipinnatifid leaves are far more laciniated than any other kind; and I think they constitute it a distinct species.

22. *The Early Crimson*, Hort. Trans. v. 5. tab. 3. (inferior figure) p. 151. and p. 421. Of light small stature, delicate, and apt to lose its leaves before its bloom is finished. The flowers are middle-sized, early, and very beautiful; they show a disk, and, when well managed, have ripened perfect seeds in England.

23. *The Clustered Pink*, Hort. Trans. v. 6. p. 336. Also known by the name of the Changeable Blush. One of the tallest of its tribe: flowers in the middle season very abundantly; and, although the flowers are but middle-sized, and little better than half-double, showing a considerable disk, and greatly resemble China asters, they make a very fine and durable appearance, standing the weather well, and becoming much darker by age, though less delicate. This is a very likely variety to produce seed in this country.

24. *The Early Blush*, Hort. Trans. v. 6. p. 326. This tall and almost unequalled variety is also called the Double Blush, and Double White. It flowers very early, beautifully, and freely, and its flowers are large, and scarcely show any disk; and their colour without is light blush, but within they are exactly of that peculiar tint well known by the name of French white; and, like many other varieties, they are very durable. They have ripened seeds in England.

25. *The Paper White*, Hort. Trans. v. 5. p. 417. 422. This exquisitely white-flowering and noble variety is of tall stature, and early blooming, and makes a splendid appearance in a general collection. Its flowers are of the middle size.

**** MARIGOLD-FLOWERED; with well-formed double flowers, resembling Double Cape Marigolds in shape and size.

26. *Golden Bronze-back; Golden Yellow*, Hort. Trans. v. 6. p. 342. and Bot. Reg. tab. 4. (superior figure). Also called the Large Yellow and the King's Yellow. A very tall, handsome, and free-flowering variety. The flowers are early, and of a high rich yellow colour, but bronzed or orange in the buds and on their outsides. This is one of the best to grow as a standard; and, if parted at the root and annually transplanted, succeeds very well as a herbaceous plant, especially if in a warm or sheltered situation, duly supported by a stick.

27. *The Superb Clustered Yellow*, Hort. Trans. v. 5. p. 156. and v. 5. p. 421. and Sweet's Brit. Fl. Gard. tab. 14. One of the finest and tallest of the group, being higher than the preceding, and with more clustered, and more neatly formed, pure yellow flowers, but they are later in opening.

28. *The Golden Lotus-flowered*, Hort. Trans. v. 6. p. 340. A very splendid and large long-leaved variety, and nearly or quite the tallest of this genus of plants; having late pure and deep yellow flowers, above the middle size, and larger than those of any other yellow kind of the marigold form, and which partially endure until the heavier frosts of winter destroy them.

29. *The Changeable Pale Buff*, Hort. Trans. v. 6. p. 380. and tab. 3. Also called the Pale Cluster. This plant, when flowering as perfectly as it is represented on the above-cited table, is one of the most showy and

splendid in the group; but this has not been the case during the autumn of 1832; all the flowers, and in various gardens, which met the writer's eye, being, as it were, degenerated into almost buff-coloured and spuriously quilled flowers, of more upright appearance than the large, expanded, flat-petaled, and variegated purple whitish and yellow-buffy ones so charmingly depicted in the figure cited. They are of the middle season.

30. *Starry Changeable Purple; The Starry Purple*, Hort. Trans. v. 6. p. 339. This beautiful plant is one of the most variable-flowered in the genus; its very late flowers first opening of a purple colour, with the exterior petals at first few in number, starry, and paler, especially at their expanded spoon-shaped tips, soon, however, becoming still more pale until the whole well expanded and very double blossom becomes regularly more blush-coloured and white, than purple, and is a very fine, well-formed, variegated flower. The stature of the plant is of the middle size, but its remarkable leaves are much more laciniated than usual, and often broader in their outline than long, which is not the case with any other in the group, and of very considerable size. Wherefore I conceive it may be a distinct species from all the others.

31. *The Late Purple; The Late Pale Purple*, Hort. Trans. v. 5. p. 413. and v. 5. p. 422. and v. 6. p. 353. Also called Large Pale Purple. This is a very late-flowering and rather tall variety, whose middling-sized and well expanded blossoms are very neat, and resemble in shape those of the preceding, but are much smaller.

32. *The Brown Purple*, Hort. Trans. v. 6. p. 341-2. A tall and slender-twigged very late-flowering variety, whose middle-sized flowers resemble the last in shape, but are not quite so flat and neat in expansion, and their colour in the group is very remarkable, being of a very dull brownish or reddish purple. The leaves are so small, and so bluntly lobed, and on such slender shoots, terminating in such long and graceful peduncles, that the plant is probably a distinct species from Chrysánthemum sinénse, and differs not so much in leaf as in flower from our No. 6., the Small deep Yellow; above.

***** TASSEL-FLOWERED; being tall or very tall plants in their genus, with very large double, and more or less conspicuously drooping flowers, whose petals are usually elongated and quilled, and often greatly resemble the form of a tassel.

33. *The Tasseled Flame Yellow; The Quilled Flame Yellow*, Hort. Trans. v. 4. tab. 14. p. 349. and v. 5. p. 421. The magnificent flowers of this tall plant appear rather late, and often measure above five inches in expansion; and make, perhaps, if not a more neat, at least a more showy appearance than any other of the group, being double, and composed of innumerable chiefly quilled incurving petals, hanging more or less downwards, and when at their best resembling a flame-coloured tassel.

34. *The Tasseled Salmon; The Quilled Salmon*, Hort. Trans. v. 5. tab. 17.* (inferior figure) p. 414. and p. 422. This is a late-flowering, slender, and graceful plant, with large tassel-like, and half-expanded drooping quilled salmon-coloured flowers, and is very uncommon.

35. *The Tasseled Yellow*, Hort. Trans. v. 6. p. 329. A very tall and strong-growing large-leaved variety, with numerous tassel-formed flowers of the largest and most showy kind, often measuring more than five inches over, and appearing rather early. It is one of the most desirable and free-growing of the whole collection.

36. *The Quilled Yellow*, Hort. Trans. v. 4. p. 341. and v. 5. p. 420. This is a tall variety, with rather large flowers, of the middle season, or later, producing its blossoms in clusters at the top of the strong upright shoots. It is also known by the name of the Quilled Straw.

37. *The Late Quilled Yellow*, Hort. Trans. v. 6. p. 343. This has been called a very late and not very desirable variety in collections. It appears to be of the middle size, but it has not yet opened its blossom buds with me, not having long possessed it.
38. *The Large Lilac*, Hort. Trans. v. 4. p. 343. and v. 5. p. 420. Also called the Late Lilac, the New Lilac, and the Semidouble Purple. A very tall upright plant, bearing but few double large and clustered flowers at the summits of the branches, and those so late in appearance, that in cold seasons they cannot expand well, and are consequently in but little repute. I have only seen one plant in blossom, and that in my own garden.
39. *The Tasseled Lilac*, Hort. Trans. v. 6. p. 332. A middle-sized, or rather tall, plant, of very great beauty, and one of the most desirable of the whole group, having very showy tassel-formed flowers, five inches or more in expanse, very numerous, early, and elegantly drooping from their weight, but they often show a disk. It is a likely variety to produce seeds of the most promising kind, but I have not hitherto heard of its ripening any in England.
40. *The Tasseled Purple; The Purple*, Hort. Trans. v. 4. p. 334. Has also been called the Old Purple, the Old Red, and the Quilled Purple, and is figured in the *Bot. Mag.* tab. 327. This is a very beautiful and rather early-flowering plant, of almost the middle size. The flowers are very numerous, gracefully drooping, and of middling size, and are at first of a reddish purple colour, but become paler by age, and in mild seasons will continue in succession from the end of October to the second week in January. It acquires the name of Old from being the first China chrysanthemum that came to England in modern times, and bloomed at Mr. Colvill's nursery, in Nov. 1795, but was said to be at Kew in 1790. The great horticulturist Miller certainly had one, or more likely two, of these Chinese, or Indian, chrysanthemums, in cultivation at Chelsea long before; but it is not yet quite satisfactorily explained what sorts they were. See *Hort. Trans.* v. 4. tab. 12. p. 326. and following.
41. *The Changeable Tasseled White; The Changeable White*, Hort. Trans. v. 4. p. 336. and v. 5. p. 419., and Bot. Mag. tab. 2042. It has also been called the Old White, being the first white-flowered variety known in our gardens. It is recorded in the Hort. Trans. to have been raised from a sporting branch of the preceding, and, indeed, resembles it in every thing but colour. It is a very graceful and elegant plant, and in warm situations its flowers are often more or less tinged or dotted with purple or blush colour.
42. *The Narrow Quilled White; The Quilled White*, Hort. Trans. v. 4. p. 337. and v. 5. p. 419. This rather slender variety is almost of the middle size, and has the slenderest and most completely quilled florets, and the earliest flowers, of the whole group, which hang in gracefully drooping tassels, and form a strong contrast to the next in almost every respect.
43. *The Great Tasseled White; The Tasseled White*, Hort. Trans. v. 4. p. 339. and v. 5. p. 420. Has also been called the Expanded White. This large, strong and broad, deep-green, shining-leaved variety is one of the latest of all in blooming; but its lovely flowers are larger and more showy than those of any white-flowered variety, and endured to the end of January, 1833, the date of the present paper. No flower in this chilly climate stands the cold so well, or so long continues to beguile the fancy of a florist by its protracted opening, by its hardihood in expansion, and by the soft hue of its snowy blossoms; carrying on, as it were, the flowery beauty of lingering

autumn into the very bosom of winter, whose ice at length closes the temple of Flora for a time, until the herald flowers of spring appear amidst the melting snow, as if impatient of delay.

****** HALF-DOUBLE TASSEL-FLOWERED; with only half-double flowers, and narrow elongated quilled petals; often drooping, and somewhat resembling a tassel.

44. *Half-double Quilled White; Semidouble Quilled White*, Hort. Trans. v. 5. p. 158. A very tall robust variety. The flowers are among the latest varieties, and more inclining to be single than usual, yet of too late occurrence to ripen seeds with us. They are very large, and the narrow quilled petals are very singularly waved, and as if pursuing each other from right to left, making a pleasing and almost animated appearance.
45. *Half-double Quilled Pink; Semidouble Quilled Pink*, Hort. Trans. v. 5. tab. 17.* (inferior figure) p. 157. and v. 5. p. 422. and v. 6. p. 351. This variety grows rather tall, and flowers latish, but its flowers, although but half-double, and only of the middle size, possess a degree of graceful elegance and lovely hues peculiarly their own. It is at present a rare variety.
46. *Half-double Bronze Buff; Pale Buff*, Hort. Trans. v. 6. p. 334. Also called the Semidouble Pale Buff, and Reeve's Pale Buff, and Quilled Buff, and the Buff. It is a very tall and free-growing variety, and its half-double buff large flowers, which in their early stages are much bronzed, though of coarse hues, make a showy appearance, and stand the weather better than all others, opening rather early, and continuing late, until all the bronze is gone, having faded to a dull buff.
47. *Half-double Quilled Orange; Semidouble Quilled Orange*, Hort. Trans. v. 5. p. 412. and p. 422., and v. 5. tab. 17.** (left-hand figure), and v. 6. p. 352. A tallish plant, with but few large and almost single, and also some nearly half-double, flowers, of good size, but making a poor show.
48. *Half-double Pale Quilled Orange; Semidouble Quilled Pale Orange*, Hort. Trans. v. 6. p. 337. Also called Semidouble Deep Yellow. Of the middle stature, with few and late flowers, of good size, but comparatively poor appearance, on loosely drooping footstalks.

Obs. The author has rejected the hybrid word *semi*-double throughout the paper.

ART. XIV. *On cultivating Cabbages by Slips or Cuttings.*

By PETER KENDALL, Esq.

Sir,

I OBSERVE you have noticed (Vol. VIII. p. 126.) a paper read by J. Lindley, Esq., at the Horticultural Society's Meeting, Dec. 6. 1831; upon the propagation of cabbages from slips.

I am anxious to draw the attention of the public to this plan, which many years ago I saw practised in the Brazils, and which I adopted on my return to England, and have practised ever since.

Early in the spring of 1831, I mentioned the subject to Mr. Lindley, who seemed much pleased with it, having never heard of it before, and promised to give the plan a trial in the Society's garden at Chiswick. The paper above alluded to reports the very satisfactory result of several trials made by his directions, and I had hoped some further notice would have been taken of it, as that gentleman assured me he thought it a useful plan, and well worth general adoption.

The following extract from an old *Morning Herald*, of the 23d of October last, taken up by accident a few days ago, must be my apology for addressing you on the subject: —

" *Extract of a Letter from the Swan River.* — Cabbage seed is of great value, as none of ours have seeded this year, and the Cape gardeners send to England for it, as it degenerates very much in a warm climate."

Had the writer of the above been aware that cabbages may readily be propagated from slips, he would most likely have availed himself of this simple method to replenish his garden, instead of waiting for a supply of seed either from the Cape of Good Hope or England.

Having no copy of the paper read by Mr. Lindley, I will endeavour briefly to describe my method of propagating, which I have practised with perfect success. The slips, when taken from the cabbage stalk, are exposed a sufficient time to the sun and atmosphere to cauterise the wounded part: in the summer 24 hours is sufficient, and two or three days in the winter; rubbing a little wood-ashes on the part, as recommended by Mr. Lindley, greatly assists in cauterising the wound, and prevents bleeding. Plant them, and they require no further trouble. After cutting the cabbages, the sprouts again afford a supply of slips for plants, and thus a regular succession of cabbages is secured throughout the whole year, with the certainty of preserving the quality of the parent stock unchanged, and of doing away with the necessity of raising plants from seed at all.

It is well known how little reliance can be placed upon the plants raised from seed being equal to the parent stock in quality, and how many disappointments arise in consequence. All this may be avoided, and each variety of cabbage propagated, without the least change or deterioration in its quality; and I have every reason to believe an earlier supply may be brought to table by planting slips, than from seedling plants. I am, Sir, yours, &c.

PETER KENDALL.

Higham Lodge, near Stratford St. Mary's,
Suffolk, Feb. 4. 1833.

ART. XV. *On producing Mushrooms in plenty in the open Air, from June to November.* By Mr. J. ELLES.

Sir,

ABOUT a twelvemonth ago (Vol. VIII. p. 214.), I promised to give you some account of growing mushrooms in the open air, during part of the summer and autumnal months; unless some of my brother gardeners should step forward in the meantime, and give the required information. As the last number of Vol. VIII. of the Magazine has just come to hand, and I find that none of your correspondents have made the attempt; I, without further preface, will endeavour to fulfil my promise. The reason why mushrooms have not been more generally cultivated, or attempted to be cultivated, in the open air, from June to November, is, I presume, to be found in this simple fact, that they are generally to be obtained in sufficient quantity in pasture lands, immediately adjoining the residences of gentlemen. If, however, a method can be pointed out, and that method the most simple in the world, by which as many mushrooms may be gathered from a few square yards of cultivated land, as from as many acres of pasture land; surely the experiment deserves a fair trial, even if it were for nothing more than for the sake of saving shoe-leather and wet feet; for, however poetical "brushing with hasty steps the dews away" may sound to ears polite, I do not know a more disagreeable job than gathering mushrooms in a wet morning; especially when a poor fellow's only consolation is to know that he must work out the remaining part of the day in the same wet plight. But to return: I not only propose to produce a crop of mushrooms, but likewise a good crop of carrots, radishes, &c.; so that, even should the mushrooms fail, the gardener will be compensated for any little extra-trouble he may have been put to. I may observe that I have tried several modes to grow mushrooms; and one season succeeded in producing a few among some late potatoes; but, generally speaking, all my schemes failed, until, at last, in April, 1831, I made a bed upon a pavement 7 ft. wide and 40 ft. long, and 2 ft. high; the bottom part (say upwards of 18 in.) with fresh litter, and the top entirely with an old mushroom bed, from which the best of the spawn was picked, to be afterwards distributed regularly over the surface. Upon this about 4 in. thick of pasture loam was spread, and a thick straw rope pegged down round the edges, to keep the loam or mould from falling, and to give it a finished appearance. I now sowed some seeds of short-horn carrots, radishes, cauliflowers, and tender annuals, &c.; in short, any thing that required a little heat; for, in fact, it was for these things I made the bed: the mushrooms were a secondary consideration. The bed, thus finished, came into bearing about the middle of June, and continued till November. It was in July and August I saw the value of the carrots; for the tops completely shaded the mushrooms from the scorching heat of the sun, and as effectually sheltered them from the chilling frosts in October. The crop surpassed any thing either my neighbours or myself had ever seen before; but we must not forget that the season of 1831 was remarkably fine for mushrooms. In the spring of this year, 1832, taking the advantage of a dry fit of weather, I made a bed as similar to the above as I possibly could; and, although the produce was sufficient for a large family, yet I consider the crop scanty when compared with the preceding one. The mushrooms appeared later, and left off bearing sooner; they likewise came inconveniently large, some weighing half a pound before the veil was broken. I have thus stated facts, without entering into any speculative arguments concerning the mysterious growth of this useful and delicious vegetable, and have given you the results of two experiments, in two consecutive years, conducted with as much accuracy as the nature of the materials and the changeableness of the seasons would permit; and, if like causes produce similar effects, would it be logical to say that these results were fortuitous?

Should you think the above worth printing, you will allow me to call on my fellow-labourers to bestow their best attention upon this subject; for if it succeed, and succeed it must (at least, I think so), why then every farmer in the empire may be taught to produce this vegetable in abundance; for certainly nothing can be more simple than making a bed on the surface of the ground, in any dry airy situation, 2 ft. high, with fresh horse-litter, and 5 ft. or 6 ft. wide; the length, of course, a matter of choice or convenience, and covering this with the cleanings from the horse track of a threshing-machine, or from a colt-house. Over all spread a few inches of mould, sow the carrot seed, and the work is done.

I remain, Sir, yours, &c.

Palace Gardens, Armagh, J. Elles.
Dec. 9. 1832.

MISCELLANEOUS INTELLIGENCE.

Art. I. *Domestic Notices.*

ENGLAND.

A few cautionary Hints to Florists, Nurserymen, and Innkeepers. — I am a well-wisher to all florists, nurserymen, and innkeepers, in general, and, I trust, to every one else. I cannot, perhaps, better show it than by giving them a strict caution not to deal or give the least attention to a fellow calling himself Gern, of the firm of Gern and Co., Nurserymen, Aberdeen; pretending to carry about with him the Scottish seedling ranunculuses for sale, raised by the far-famed Mr. Waterstone of Paisley, and a Mr. Thompson, and also showing a general nursery catalogue. Now, there is positive proof that this fellow is a thorough impostor both in word and deed; and report goes so far as to say that he is not ignorant of seven years' transportation, which I conscientiously believe to be true, from the quarter from which I received my information. At whatever inn or public house this Judas may think proper to take up his abode, he regularly leaves without paying the landlord. In this manner he has acted to three respectable houses in Cambridge; and at Huntingdon also he has left them sufficient cause not to forget one Gern, the Scotch laddie from Aberdeen, who kindly honoured them with a visit. His appearance is by no means respectable; but I will give him credit for the possession of abilities far beyond what we meet with every day. In his conversation he is pleasing, and it is mixed up with anecdotes captivating to that class of men he most usually calls upon. He has on a shabby green great-coat, carries a purple bag similar to those used by travellers, and, whilst addressing, you frequently takes snuff. He stands about five feet four inches in height. This is as near as I can describe his appearance. I do most earnestly entreat, for the good of the public at large, that those gentlemen who may be honoured by a call from this vile impostor will do all in their power to entrap him, and inflict upon him such punishment as his conduct so justly merits at the hands of every honest and fair-dealing man. I write this not because I have myself been imposed upon, but from the strong disgust that I feel that so infamous a fellow should have cheated friends of mine. Should this reptile who is crawling about this earth of ours in human shape be taken, I shall esteem the publication of the fact in this Magazine a favour, for the satisfaction of those who have unfortunately been deceived and imposed upon by him. — *F. F. Cambridge, March* 6. 1833.

News of this living libel on our calling has reached us from Oldham, Lancashire. We quote as follows: — " A friend saw him at Stamford. He had travelled all night from Cambridge, and when he had got to Stamford, he ran away without paying his fare. Gern's proper name is Green, and he has lived in Manchester...... He came to Oldham and.... he called himself a traveller from a Mr. Pope of Birmingham, and had been into Scotland and all the north of England. In short, he has not left a town where he has been in Lancashire, and few in Yorkshire, but he has cheated all he could out of their money. It would take many sheets of paper to hold a relation of the tricks I have heard of his practising...... At Burnley, twenty miles hence, he bought a lot of common border tulips (it is said, a peck) for five shillings, and, after dressing them, and giving them grand new names, has sold out of that bag to the amount of hundreds of pounds." — *J. D.*

Skilful Restoration of half-ruined Shrubberies. — Sir, At a gentleman's seat, within twenty miles of London, at which I have lately had occasion to call, I was struck with the appearance of the shrubberies. As these are different from any I had ever seen before, I shall (with the gardener's permission and assistance) endeavour to give you an account of the manner in which they have been treated, as I think that shrubberies in general are too much neglected. It appears that, some years ago, when the present gardener came to the place, he found them nearly in a wild state, except that the ground between them had been annually dug. He therefore set about thinning them in good earnest. Nearly all the under-shrubs were cut down to within a few feet of the ground; the large trees were then thinned out, so that such trees as were not too far gone for improvement might stand clear of each other, in order to encourage them to grow into a handsome shape. The stools were then well cleaned out; that is, all useless suckers were taken out, and the mould which had been imprudently thrown in was, as far as practicable, taken out, and the ground raked very fine. It has never since been dug; but every year, as soon as the leaves are off, the trees and shrubs are carefully pruned, and the leaves are raked out and swept up. By this means, instead of a rough brown surface, there is now a covering of moss, which not only looks beautiful, but, as the ground is not disturbed, the surface roots are not destroyed, nor the ground made unlevel by the common practice of digging holes to bury the leaves in. The advantage of thus thinning the trees and pruning the shrubs cannot, I think, but be admired by the most careless observer. — *R. T.*

Hints on cultivating Commelìna cœléstis; and on preserving the Bulbs of Tigrídia Pavònia and conchiflòra. — The Commelìna cœléstis is well known to thrive, and display its succession of beautifully delicate azure flowers in the open borders, during the months of July and August; but on the approach of winter a trifling frost is sure to destroy the roots. I have successfully preserved the latter by the following practice: — Plants raised from seeds early in the spring will, if planted by the end of April in tolerably rich soil, produce good roots by the autumn. After the stems are dead, and removed from the plants, the roots are taken up, and placed under the stage in the green-house, or upon the mould contained in large pots or boxes which include large plants; in short, in any part of the green-house in which they can be kept in a moist state; and, to secure them in this condition, sprinkled occasionally from the rose pan of a watering-pot, if they are not damp enough without it: their natural texture is so succulent, that they will, if kept dry, shrivel and become exhausted, and, if suffered to remain in a half-dried state, they will become mouldy and rotten. In the beginning of March they should be planted, if in a bed, at a foot apart, when they will be much finer and stronger than they were in the previous year. By continuing to grow and preserve them in this manner, they will improve each succeeding year, and increase by offsets, as do the turban and other ranunculuses. The roots which I send with this are four and five years old. I have found the bulbs of Tigrídia Pavònia and conchiflòra best preserved in the above manner. — *C. Austin, Gardener to Admiral Sir B. H. Carew. Beddington Park, Surrey, Feb.* 27. 1833.

It may not only be said that the C. cœléstis blooms through "July and August," but until Michaelmas, in most seasons; later even, if frosts come not so soon. Than the six fascicles of tubers sent, finer have probably never been seen. The number of tubers in them are severally 11, 14, 18, 20, 21, 21, and the stoutest of them are, in the middle, as thick as a full-sized cedar pencil, and the longest of them slightly beyond four inches long. If the C. cœléstis be grown in a dry border, a yard or so from the base of a southern wall, and some of the numerous seeds which it will ripen allowed to fall, these will remain unhurt in the soil through the winter, and germinate spontaneously late in the following spring: so experience has taught *J. D.*

The common Mignonette (*Reséda odoràta*) *grown to a remarkable Size.* — Some one of your correspondents enquires (Vol. VIII. p. 374.) about *tree* mignonette. What is wanted with *tree* mignonette? The common may be grown to any height required, or at least to any reasonable height. We have it here from four to ten feet high. I have now a plant of the latter height, in one of Bailley's iron-roofed conservatories, which he erected here five years ago. The plant is quite a pyramid, about eight feet in circumference at its base, and tapers to the top, and forms a perfect mass of flowers. — *J. Elles. Palace Gardens, Armagh, Dec.* 2. 1832.

A Prize of a Sovereign for the best Dish of Tubers of O'*xalis crenàta* Jacq., the growth of 1833, was offered by the Devon and Cornwall Horticultural Society, at their anniversary meeting, on February 6th, in consequence of Mr. Mitchell's information on this plant, supplied in our last (p. 78.). The prize was offered to excite to its introduction into, and cultivation in, that neighbourhood, where it scarcely or not at all exists at present. Dr. Hamilton, the distinguished secretary of the above society, has written to us to put him in the train for the acquisition of a tuber, or some tubers, of the plant, even "if a single tuber so small as to come under a frank." We know not how we can better do this than by publishing his wish, and leaving the matter open to any one who has a tuber or tubers to spare, or may choose to exhibit for the prize offered. Dr. Hamilton's address is, 14. Oxford Place, Plymouth. — *Cond.*

Art. II. *Notes on some of the London Nurseries, and on the Chiswick Garden.*

Several foreign nurserymen have visited London this spring, and some of them have given considerable orders. One of the Messrs. Booth, of the Flotbeck nurseries, near Hamburgh, has been here all the winter. Mr. Thorburn, Jun., of New York, has been for some months in this country, and has made large purchases. From one firm he took upwards of 5000 fruit trees. At Messrs. Colvill's he selected some of the most rare and high-priced stove and green-house plants, and even some of the largest specimens of the high-priced kinds. Nothing can be more gratifying to us than to see this renewed intimacy between the American and British nurserymen, because we feel assured it will lead to the advantage of both countries; not only directly, by reciprocal commercial benefits, but remotely and permanently, by making the two nations better acquainted with, and more dependent upon, each other. Were the mass of society, in every nation, well acquainted with the mass of society in every other nation, the whole world would become, as it were, brethren; and it would not be possible for the governments of different countries to wage war against each other. The Americans and the British, at least as far as respects the gardening and horticultural world, have had very little connection with each other, since the breaking out of the first French revolution. Since that period, and until very lately, the Americans obtained almost all their garden seeds from France, as well as what fruit trees they required from Europe. About the end of the last century large importations of fruit trees were made from France to Montreal, from which nearly the whole of the Union and of British America was supplied. The great importer of French seeds was M'Mahon of Philadelphia; and the Montreal nurserymen were, and are, Guilbault and Co. Many others have since arisen, and among these, at Montreal, our much esteemed friend and correspondent, Mr. Cleghorn. We hope, now that the connection between America and England is every year drawing closer and closer, that nursery articles will form important objects of export from this country; and, indeed, we have no doubt that this will be the case; for so high is the price of labour in America, that a London grower can undersell the Americans in all their own trees and shrubs. This would be still more the case than it is at present, if the south and west of Ireland were in such a state as to admit of the safe employment of British capital there in nursery cultivation. All Europe might be supplied with nursery articles from Ireland, if that country were only tranquil; for there is, perhaps, no soil or climate in the world better calculated for the propagation of trees and shrubs.

In Colvill's Nursery there are some fine plants of the Palo de Vaco, or Milk Tree, which ought not to be lost sight of by amateurs. Mr. Kewley has here extended his siphon mode of heating, with his usual success. It is remarkable that, though several attemps have been made, there has not been a single successful imitation of this mode. Mr. Kewley is not only a thoroughly scientific man, but he possesses the secret of joining his large pipes in such a manner as to be perfectly watertight. Some Orchídeæ, here impregnated artificially, are ripening their seeds. (See Vol. VIII. p. 473.)

In Mr. Knight's Nursery, the plants raised from Mr. Baxter's seeds are in excellent condition. The Proteáceæ are admirable plants. Telòpea speciosíssima is coming into flower. One of the magnificent tree rhododendrons is sold to the Duke of Devonshire.

In Mr. Malcolm's Nursery, the magnolias are promising abundance of blossom, and the stock of American and other peat earth shrubs is a sample, and eligible for removal as usual. The heaths, and the other green-house plants, look remarkably well at *Mr. Lee's*, as do the herbaceous plants at the *Fulham Nursery.* We must, however, defer our further observations on these and other nurseries till next Number. — *Cond.*

Mr. Dennis and Co.'s New Grounds, in the King's Road. — Mr. Dennis has been busy, during the autumn and winter, in introducing perennial plants and some shrubs into this occupation; and one good-sized green-house is already erected, and filled with plants. It has a most capacious lean-to shed at its back, and under the floor of this a cellar, more than 6 ft. deep. As the subsoil here is wholly gravel, and consequently dry, this cellar will, we presume, be found most eligible for the preservation from frost of the tubers of georginas, for the cultivation of a very extensive collection of which Mr. Dennis is so noted. He last year flowered that choice and remarkable variety, Levick's Commander in chief, whose prettily formed flower is of crimson colour, variegated with darker stripes: it is figured in colours in the first number of Harrison's *Floricultural Cabinet.* While we were with Mr. Dennis, in his grounds in Grosvenor Row (March 2d), a basket of georgina tubers, from Rouen, was delivered to him, and he informed us that he has, since the autumn, made some valuable additions to his collection by choice varieties, which he has procured from different parts of this country, and from France and Switzerland, and that he consequently anticipates a corresponding improvement in his display next autumn: his additions, he remarked, have been greater than in any previous year: he has resolved to commence planting out much earlier this year than he did the last. The numerous pelargoniums which Mr. Dennis cultivates were looking promisingly, but none of them were yet in flower. Some new varieties have been added to those previously possessed. Peréskia *Blèo* was looking most luxuriantly, and showing several buds, in a little propagating stove, kept at a high temperature, and the atmosphere quite moist. We saw this rosy-blossomed beauty, and the same plant too, blooming here late in the autumn; so that it is hence proved to be a freely flowering species. Among the importations, in the end of 1831, from North America, as collected there by Mr. Alexander Gordon, we saw blooming Symplocárpus fœ'tidus, the *Pòthos* fœ'tida that was. This plant, figured from a pitiably weak specimen in the *Botanical Magazine*, t. 836., has, by Dr. Hooker, just been again figured in the number for March, t. 3224., for the sake of enriching that valuable work with a perfect figure of so curious a plant. This plant abounds in America, and is there called skunk-weed, from its odour resembling that of the skunk weasel (*V*ivérra mephìtis); but what part of the plants effuses this odour seems to be nowhere stated. From Dr. Hooker's remarks it would seem to be the fruit which does, but this is not stated with pointed clearness. Mr. Dennis is quite alive to the effectiveness of manual impregnation in promoting the production of seeds, and one of his men was at this time applying the pollen to the stigmas of a *R*hododéndron catawbiénse that had been at this early period forced into blossom; the stock of this species in the nurseries is said to be becoming quite limited. This was not an instance of cross-impregnation, or hybridising, a practice which Mr. Dennis has extensively applied, with well-known effect, to pelargoniums; and, more recently, to *C*ácteæ; with what result, in the latter case, has yet to be learned, as very few of his hybridly originated seedlings have yet flowered. — *J. D.*

The Horticultural Society's Garden is, as might be expected after so mild a winter, looking remarkably well. We were particularly gratified by observing great part of the wall destined to the acclimatising of half-hardy trees and shrubs, protected by a temporary coping, composed of wickerwork hurdles covered with drawn wheat-straw mats. The width of this coping is about 4 ft.; one end of the hurdles is let into the wall under the coping, or is nailed to the top of the wall, and the other rests on a slip of deal, supported by props of young fir trees. The appearance is simple, of a Doric elegance, and it is most delightful to see the thriving state of the trees under it, as well as the plants in the narrow three-feet border. This is obviously a much better mode of protection than close covering with Russian mats; and, in our opinion, which we have before repeatedly stated in this Magazine, it might be carried to an immense extent. Why not plant out whole acres of Australian trees and shrubs, and protect them during winter in this manner? There is no occasion for walls: simply raise the hurdles on poles, such as are used by the bricklayers for scaffolding, connected by iron rods, or pieces of narrow quartering. Perhaps, indeed, netting coated with Indian rubber, in Mr. Mallet's manner, might be found sufficient. At all events, we have long been satisfied that there is an immense deal to be done in the way of displaying exotic trees and shrubs in the open air. We do not say that species can be rendered hardier in their nature, though individuals may; but we do say that many plants now kept in green-houses, and also some which are kept in stoves, will eventually be found to do much better either in the open ground among other exotics, and protected by a temporary covering during winter, or planted among hardy deciduous and evergreen trees, so as to be protected by them. The pine plants are looking exceedingly well; and several reforms, changes, and variations have taken, and are taking, place in the hot-houses and pits. A new house, wretchedly placed (and we must say, that there never was a garden which, either in its first arrangement, or its subsequent alterations, displayed so little of simplicity and unity of design as that at Chiswick), has been erected and heated by Mr. Perkins, for the growth of orchideous plants; certainly a remarkable order, which seems to serve the same purpose in tropical forests that mosses and lichens do in those of temperate regions. Some alterations have taken place in the disposition of the trained trees on the different fruit walls, which we doubt not will tend to forward the grand object of proving and describing fruits. The good which the Society is now doing by distributing all over Europe and America scions of all the best apples and pears, is greater than can well be estimated. We regret that their fruit catalogue is more than double the usual booksellers' price for such a pamphlet; it ought to have been sold at cost. — *Cond.*

Art. III. *Floricultural and Botanical Notices of new Plants, and of old Plants of Interest, supplementary to the latest Editions of the " Encyclopædia of Plants," and of the " Hortus Britannicus."*

Curtis's Botanical Magazine; each monthly Number containing eight plates; 3*s*. 6*d*. coloured, 3*s*. plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; each monthly Number containing eight plates; 4*s*. coloured, 3*s*. plain. Edited by John Lindley, F.R.S., Professor of Botany in the London University.

Sweet's British Flower-Garden; each monthly Number containing four plates; 3*s*. coloured, 2*s*. 3*d*. plain. Edited by David Don, Esq., Librarian to the Linnæan Society.

Loddiges's Botanical Cabinet; each monthly Number containing ten plates; 5*s*. coloured, 2*s*. 6*d*. partly coloured. Edited by Messrs. Loddiges.

Dicotyledonous Polypetalous Plants.

IV. P*apaveràceæ.*

1552. *PAPA`VER.*
13777*a* pérsicum *Lindl.* Persian ○ or 1½ jn.jl Bri Persia 1830? S co Bot. reg. 1570

" It is an annual which would be pretty if its petals were not so quickly deciduous. Its nearest affinity is with *P.* Argemòne." (*Bot. Reg.*, March.)

XLVI. C*ácteæ.*

1472. CE`REUS.
12586*a* Mallisòn*i* Hort. Mallison's ℓ □ or 6 ... C. specioss.-flagellif. 1830. C p.l.s Bot. reg. 1565

" This must be classed amongst the very best hybrids which floriculturists have succeeded in obtaining. It was raised a few years ago by Mr. Mallison, gardener to Sir Samuel Scott, from a seed of Cèreus speciosíssimus fertilised by the pollen of Cèreus flagellifórmis: the former the well-known erect species with brilliant scarlet blossoms; the latter the equally common trailing kind with pale rosy flowers. The result has been a hybrid as nearly as possible intermediate between the two parents, having all the brilliancy of colour of the female line combined with the prolific constitution and trailing habit of the male. It was exhibited for the first time at a meeting of the London Horticultural Society, in 1832: the specimen was about 2 ft. long, and excited much admiration. It was loaded with crimson flowers of the most healthy appearance; and, what was especially remarkable, the colour of its stem was not the dull green of that of C. flagellifórmis, but the rich bright hue of that of C. speciosíssimus. The only plant we are acquainted with is in the possession of Sir Samuel Scott. It appears to be a hardy green-house plant, and will doubtless increase freely by cuttings." (*Bot. Reg.*, March.)

XLVII. O*nagràriæ.*

1183. ŒNOTHE`RA.
28196*a* concinna *D. Don* comely ○ ⁎ or 1 s Pa.Ro Chile 1831. S s.l Sw.fl.gar.2.s.183

" Flowers axillary, about twice the size of those of *Œ.* ròsea. Petals cloven at the top, of a pale rose colour, and elegantly pencilled with branching veins of a deeper tint. It is a hardy annual, of easy culture." The plant was raised by Mr. Lambert, from seeds collected in Chile by Mr. Hugh Cuming. (*British Flower-Garden*, March.)

LI. Loàseæ.

1477. **BARTO'N*IA*.**
28658. **albéscens *Gill.* white-*stalked* ○ cu 2 jl.n Pa.Y Chile 1831. S s.l Sw.fl.gar.2.s.182**

A Chilian novelty, devoid of attractive beauty, already registered in our *Additional Supplement*, but less perfectly than as here given. The species naturally " occupies dry watercourses in the province of Mendoza." (*British Flower-Garden*, March.)

LXXVII. *Leguminòsæ* § Sophòreæ.

1251. **GOMPHOLO'BIUM.**
10533a **capitàtum *Cun.* headed-*flwd.* ✱ ⊔ de 2 jl Y N. Hol. 1830. S s.p Bot. reg. 1563**

A species nearly allied to the G. tomentòsum, but " distinguished by its less-pinnated shorter leaves, which are by no means scabrous on the upper side; and by its flowers growing in terminal clusters, instead of singly or in pairs. The flowers are also of a bright deep yellow, and not pallid. It is also closely allied to the G. lanàtum (*Cun. MS.*); but its capitate inflorescence at once distinguishes it." Raised by Mr. Knight, from seeds collected by Mr. Baxter. (*Bot. Reg.*, Feb.)

XCVI. R*hámneæ*. Pomadérris andromed*æfòlia* Cunningham is figured from the Kew collection in the *Bot. Mag.* for Feb. 1833. It is a branched shrub, with leaves lanceolate-oval, smooth; and, beneath, snowily tomentose. The flowers, of a rusty aspect, are produced in rather small, dense, terminal corymbs.

CXIII. *Anacardiàceæ.*

2649. **DUVAU'*A*.**
23319a **ovàta *Lindl.* ovate-*leaved* ♣ ⊔ or 6 jl Gsh Chile 1824. C l.p Bot. reg. 1568**

" This is the third species of Duvaú*a* extant in our collections. All of them are very handsome evergreen bushes, with a bright shining foliage, which emits a strong but grateful odour when bruised. They will not bear the climate of London without protection from frost; but, if trained to a wall, and sheltered by a roof of thatch in winter, they succeed perfectly: in short, they are about as hardy as myrtles." D. ovàta blossomed abundantly in July, 1832, upon a south wall, in the garden of the Horticultural Society: in affinity, it is close on D. depéndens. " It will grow in any soil or situation which is dry in summer, and well drained in winter. It would probably succeed in the crevices of rocks in Devonshire or Cornwall." (*Bot. Reg.*, March.) Some of the present species of Duvaú*a* were once included in the genus *S*chìnus: and for a notice of a remarkable quality possessed by the leaves of schinuses, and most probably those of duvauas as well, see the next Number.

DICOTYLEDONOUS MONOPETALOUS PLANTS.

CLXX. E*ríceæ* § *vèræ.*

1174. **MENZIE'S*IA* 9944 *p*oliifòlia.**
1 **flòre-álbo *Ma. C.* white-flwd ♣ or 1½ ... ... Ireland ... L s.p ......**
2 **nàna dwarf ✱ or ½ jn.s P Ireland ... L s.p Bot. cab. 1907**

Mr. J. T. Mackay, in noticing habitats in Ireland for *Æ*rìca mediterrànea and Menzièsi*a p*oliifòlia, also remarks that " a variety of this last, with white flowers, of which I have a living specimen in the College Botanic Garden, has lately been found growing sparingly with the species itself." Mr. Mackay's communication is dated Jan. 17. 1831.

E*ríceæ* § R*hodoràceæ.*

622. **AZA'LEA 4343 póntica.**
7 **versícolor *Lindl.* various-cld. ♣ or 4 mr.my Y.Ro.W Eng.hyb. 1827. L s.p Bot. reg. 1559**

One of the extremely beautiful hybrid azaleas raised at Highclere, by Lord Carnarvon. If the present yield to some of those previously published " in intensity of colour, it certainly is not surpassed in other respects. It is a most abundant flowerer; its blossoms are produced in large umbels; and the variation of tint caused by each corolla being diversified with bright yellow, rose of different shades, and white, gives the bush an air of richness that is rarely to be exceeded. The plant having been liberally distributed by order of Lord Carnarvon, and being now to be found in many of the choicer collections of this country, it is to be hoped that it will soon become common." (*Bot. Reg.*, Feb.)

CLXXI. *Epacrídeæ.*

518. LEUCOPO'GON.
4325*a* ? parviflòrus *Lindl.* small-flwd. ■ ⊔ cu 2? my W N. Holl. 1790. C s.p Bot. reg. 1560
Styphèlia parviflòra *Bot. Rep.* 287.

An interesting little shrub to botanists, drawn from Lowe's collection, in the Clapton Nursery. It has been long in the country, as Professor Lindley proves it to be the Styphèlia parviflòra of Andrews's *Botanist's Repository*, 287.; which has hitherto, although erroneously, been deemed identical with Brown's Leucopògon lanceolàtus. Mr. Cunningham relates that he met with one or other species of the genus Leucopògon in abundance on every coast he visited: amongst them, he has discovered species whose characteristics have not yet been published. (*Bot. Reg.*, Feb.)

CLXXV. *Lobel*iàceæ.

609. LOBE'L*IA.*
5103*a* coloràta *Swt.* coloured-*lvd.* £ △| or 5 dp B.O N. America 1832. D p.l Sw.fl.gar.2.s.180

" Another showy hybrid Lobèl*ia*, derived, most probably, from the intermixture of L. cærùlea and L. cardinàlis. It formed part of a collection of plants received by Mr. Dennis, nurseryman, Chelsea, from North America; and, although sent as a native species, the imperfect nature of the anthers clearly establishes its spurious origin: it is, nevertheless, a highly ornamental plant, and is well entitled to a place in the flower-border. The stems are tall, straight, and generally unbranched; occasionally rising to the height of 6 ft., and terminated by a long close spike of blue flowers. A light soil, composed of sandy loam and peat, appears to suit it best; and the plant may be increased, either by parting the roots or by cuttings." (Sweet's *Flower-Garden*, Feb.) This is one of the kinds, possessed by Mr. Dennis, to which we have adverted in p. 106.

CLXXXVI. *Compósitæ. Liàtris* odoratíssima is figured in the *British Flower-Garden* for March, t. 184., from the nursery of Mr. Dennis, Chelsea; who, in 1831, introduced, through Mr. Gordon, several plants of it from Carolina: it had previously become scarce in our collections. " It is known in North America by the name of ' Carolina vanilla plant,' from the delightful fragrance it diffuses, resembling that yielded by a recently cut hay-field abounding in the vernal grass (Anthoxánthum odoràtum). The smell of the dried herbage is even more agreeable; and specimens still retain their fragrance after having been kept in the herbarium for more than twenty years. The plant requires a peat soil; and it should, when in a growing state, be freely supplied with water. It is increased by parting the roots." (*British Flower-Garden*, March.)

The Gastrocárpha runcinàta *D. Don*, Hort. Brit., p. 363., is figured in the *Botanical Register* for Feb. t. 1564., as Moschària pinnatífida (*Hort. Brit.*, p. 328.); the name Moschària being given to the plant, in the *Flòra Peruviàna*, in expression of its musky odour. As it is a freely growing, freely blooming, and freely seeding annual, not unshowy in its numerous heads of white flowers, it will probably be shortly spread about; and we have, in consequence, identified the name for it already in *Hort. Brit.* with that by which Mr. Lindley has chosen to publish it.

2441. MOSCHA'RIA *R. & P.*
22254. pinnatífida *R. & P.* pinnatifid-*lvd.* ○ or 2 my.o W Chile 1827. S co Bot. reg. 1564
Gastrocárpha runcinàta *D. Don.* Mosígia pinnatífida *Spreng.*

CXC. *Cinchonàceæ* § *Cinchòneæ.*

602. RONDELE'T*IA.*
speciòsa *B. C.* showy ❀ □ or 1? ... S Havannah 1830. C l.p Bot. cab. 1893

"This brilliant plant is a native of the Havannah; whence we received it, through the kindness of our friend W. J. M'Leay, Esq., in 1830. There is a figure in Jacquin's *Americana*, which he calls R. odoràta, closely resembling this, possessing the fragrance of violets; but ours has not the slightest scent. The flowers are exceedingly rich in colours; and make a most striking appearance, being quite as splendid as those of Ixòra coccínea, if not more so, although our specimen was by no means a strong one." (*Bot. Cab.*, Feb.)

CCVI. M*yrsíneæ.* *M*ýrsine capitellàta, the cluster-flowered myrsine, is figured in the *Botanical Magazine* for March, t. 3222. "In Nepal, the wood of this tree, and of *M.* semiserràta, is of a chocolate colour; radiated, compact, and heavy, and much esteemed by the hill people for various carpenter's works: the ripe fruits are also eaten."

CCXI. *Scrophularíneæ* § *Anther-bearing stamens two.*

55. SCHIZA'NTHUS 477 pinnàtus.
2 hùmilis *Lindl.* dwarf ○ or 1 jn.o. Li.C Valparaiso 1831. S l.t Bot. reg. 1562

"A variety of considerable beauty; distinguished by its very dwarf, compact habit, and broader leaves. Raised from Mr. Cuming's seeds by Mr. Campbell. In all its habits, it seems to agree with the species to which we refer it as a variety." (*Bot. Reg.*, Feb.) This is one of the kinds of which we have spoken in Vol. VIII. p. 481.

65. CALCEOLA'RIA 577 integrifòlia.
3 viscosíssima *Hook.* most viscose ❀ __⌋ or 3 n Bt.Y Chile 1832. C l.p Bot. mag. 3214

The leaves are large and ovate, and, as well as the surface of the stems and branches, clad with a very viscid pubescence; "so viscid, indeed, that it is difficult to separate specimens from the paper in which they have been dried." The corymb contains a good many flowers of a "bright but not deep yellow." Dr. Hooker fears to make this more than a variety of C. integrifòlia, to which it looks considerably unlike. Raised by Mr. Cameron of the Birmingham Botanic Garden. (*Bot. Mag.*, Feb.)

CCXIII. S*olàneæ.*

359. WITHERI'NG*IA.*
purpùrea *B. C.* purple-*corollaed* ✲ ⌊△⌋ or ½ su Pa.P Chile 1829. C r.l Bot. cab. 1892

"The root is a small roundish tuber, which produces several trailing branches; and these, taken off, strike root readily, and form plants." (*Bot. Cab.*, Feb.)

591. *S*OLA'NUM.
4714. runcinàtum *R. & P.* runcinate-*lvd.* £ ⌊△⌋ cu 3 o V Chile 1831. S co Sw.fl.gar.2.s.177

A showy, freely-growing, half-hardy species, which will grow in any soil, and may be increased by suckers, cuttings, or seeds. (*British Flower-Garden*, Feb.)

CCXIV. A*canthàceæ.*

1727*a* CALO'PHANES *D. Don* (*Kalos*, beautiful; *phainō*, to appear; flowers) 14. 2.
oblongifòlia *D. Don* oblong-leaved £ ⌊△⌋ or 1 au B Carolina 1832. D l.p Sw.fl.gar.2.s.181
Ruéllia oblongifòlia *Michaux.*

"This is by far the prettiest of the extra-tropical *A*canthàceæ, and is really an interesting addition to our hardy border flowers. It is a dwarf herbaceous perennial, requiring to be planted in a mixture of loam and peat, and is readily increased by parting the roots. It is a native of Carolina; and has been but recently introduced by Mr. Dennis, from whose collection our drawing was taken in August last." (*British Flower-Garden*, March.) The corolla is funnel-shaped, of a pale azure colour, three fourths of an inch long, and more than half a one over: the flowers are rather numerously produced.

MONOCOTYLEDONOUS PLANTS.

CCXL. *Orchídeæ* § Vándeæ.

2537. MAXILLA'RIA.
ochroleùca *B. C.* pale yellow £ [△] or ‡ su.aut Pa.Y Brazil 1830? D m.v.po Bot. cab.1904

"Lately introduced. It grows vigorously, and flowers during summer and autumn. It is not so splendid as some species of this genus, yet well deserves cultivation; which is not difficult, planted in moss and vegetable earth, with fragments of pot intermixed." (*Bot. Cab.*, March.)

2540. ONCI'DIUM. [Bot. reg. 1569
Harrison*iànum* Lindl. *Mrs. A.* Harrison's £ [△] or 1 o? Y.spot Brazil Mntns. 1830. D moss.r.w

Named "after a family more distinguished than any other for the number of species of orchideous plants which they have introduced, and for the success with which they have cultivated them."

"For what purpose can the world have been adorned with the orchideous plants? To man or animals they are scarcely ever of any known use. No honey is secreted by their flowers; neither poison, medicine, nor food is collected in the recesses of their stems; and their very seeds seem unfit for feeding even the smallest birds. We can scarcely suppose them provided for the purification of the unwholesome atmosphere of the forest recesses in which they delight; for their organisation is that of plants whose leaves perform their vital actions too slowly to effect such a purpose. For what, then, can they have been formed, unless to delight the sense of man, to gratify his eye by their gay colours and fantastic forms, and to show the inexhaustible fertility of that Creative Power which we recognise every where in nature."

"If this be not the object of those countless changes of form and colour which the orchis tribe exhibits, we shall scarcely comprehend why, in this very genus Oncídium, the lip bears at its base a collection of tubercles, which are not only different in every species, but so strangely varied, that

'Eye of newt, and toe of frog'

are the least singular of the forms that lie cowering in the bosom of their petals; the heads of unknown animals, reptiles of unheard-of figures, coils of snakes rising as if to dart upon the curious observer, may all be seen in the blossoms of the various species, whose very flowers may be likened to unearthly insects on the wing." In O. Harrison*iànum* "one might fancy they resemble a bat's head, of which the downy centre forms the forehead, the back tubercles the ears, the horn in front the snout, and the two lateral tubercles a pair of flaccid cheeks." (*Bot. Reg.*, March.)

Orchídeæ § *Epidéndreæ.*

2558. BLE'T*IA.*
22754*a* acutipétala *Hook.* acute-pet. ✻ ⌊△⌋ or 5 ... Pa.Ro S. Carolina 1831? O p.l Bot. mag. 3217

"My kind and obliging friend, Mr. Henry Shepherd, of the Liverpool Botanic Garden, has, I think, correctly considered this as distinct both from B. verecúnda and B. flórida." (Dr. Hooker in *Bot. Mag.*, Feb.)

2562. BRASAVO'L*A.*
28680*a* Perrin*ii* Lindl. *Mr.* Perrin's £ [△] or 1 s G.W Rio Jan. 1831. D p.r.w Bot. reg. 1561

Closely allied to B. nodòsa, but "essentially distinguished by its smaller flowers, the short stalk of the labellum, and the toothing of the back lobe of the clinandrium. It is by no means so handsome as B. nodòsa; but, as it grows very freely, it will be esteemed an acquisition by the lovers of epiphytes. At the request of Mr. Harrison, it is named after Mr. Perrin, his gardener, under whose skilful management the collection of epiphytes at Aighburgh has arrived at a state of great perfection." (*Bot. Reg.*, Feb.)

For notices of Mr. Perrin's mode of propagating orchideous epiphytes, see this Magazine, Vol. VII. p. 541., Vol. VIII. p. 88.

CCXLI. *Scitamíneæ.*

6. **HEDY'CHIUM.**
stenopétalum *Wal.* narrow-petaled £ [△] or 7 mr W India 1830? D r.l Bot. cab. 1902

Introduced lately by Dr. Wallich. To be cultivated in perfection, it should have a large-sized pot and rich loamy soil. It may be increased by separating its knobby roots early in the spring. (*Bot. Cab.*, March.)

CCXLIV. *Júnceæ.*

10. **XY'RIS.**
altíssima *B. C.* tallest £ ⌊△⌋ pr 7 o Y N. Holland 1826. S bog Bot. cab. 1900

The leaves are 6 ft. or 7 ft. long; and the flower-stem is as long, and much resembles them; but, at a little distance from the end, it opens and becomes a kind of spathe, producing several flowers in succession. They came out in October, and each lasted but a single day. (*Bot. Cab.*, Feb.)

CCXLVII. *Asphodèleæ.*

LEDEBOU'R*IA* Roth. (*C. F. Ledebour*, author of *Travels in the Altaic Mountains*, and of a *Flòra Altàica*. This generic name is preoccupied by No. 829.: one of them cannot remain.)
hyacinth*ina* Roth. Hyacinth-like ɣ ⌊△⌋ cu ½ ... Gsh.W E. Indies 1832. O p.l Bot. mag. 3226

An interesting little bulbous plant, with leaves spotted in the manner of those of a Lachenàl*ia*; with a short scape or two, each bearing a raceme of small drooping, not showy, flowers. The plant is barely in the country yet: the figure published was drawn in India. (*Bot. Mag.*, March.)

CCLI. *Liliàceæ?*

3339. **CALOCHO'RTUS.**
lùteus *Doug.* yellow-*petaled* ɣ △ or 1 s.o Y.G.spot California 1831. O s.p Bot. reg. 1567

A very interesting species of this charming genus. "It appears to succeed perfectly in a north border in sandy peat, and proves hardy. Its blossoms, produced in September and October, are not fugitive; but, on the contrary, remain without fading for a week or ten days. It is the more interesting, as we have nothing at the same season which resembles it at all in character." The flowers are terminal, two to three on a stem; the three sepals green, much narrower than the petals: these are three, each yellow at its tip, green in its middle, part spotted with blood colour, and furnished with a transverse band of yellow hairs; the base is green and smooth. Possessed by the London Horticultural Society, who have yet too few bulbs of it to be able to distribute any at present. Introduced by the meritorious Douglas. (*Bot. Reg.*, March.)

FLOWERLESS PLANTS.

CCLXIV. *Fílices.*

2918. ***B*LE'CHNUM** § 1. Fronds pinnated; Pinnæ entire.
grácile *Otto* slender £ [△] el ¾ d Br Brazil 1830. D s.p Bot. cab. 1905

We have kept this pretty little fern in the stove, in which it appears to thrive. (*Bot. Cab.*, March.)

Plants cultivated in the Birmingham Botanic Garden, the Names and Particulars of which are unrecorded in the Hortus Britannicus. — Sir, The annexed list is a continuation of plants cultivated here, not recorded in your *Hortus Britannicus* or *Additional Supplement.* I am, Sir, yours, &c. — *David Cameron. Botanic Garden, Edgbaston, near Birmingham, Feb.* 28. 1833.

208. **AIRO'PSIS.**
pulchélla neat ♣ △ un 1 ap ... . 1831. D co
1706. **BIGNO'N*IA*.**
serrulàta *Wall.* serrulate ♣ ▭ or ... ... E. Indies 1832. C l.p
adenophýlla *Wall.* glanded-leaved ♣ ▭ or ... ... E. Indies 1832. C l.p
1854. **BISCUTE'LLA.**
longifòlia long-leaved £ △ un ... ... Switzerland 1832. D co
[If this be the B. longifòlia of Villars, it is Decandolle's var. *a* of B. saxátilis, No. 16393.]

243. BRACHYPOˋDIUM.											
máximum	largest	♣	△	un	2	ap	...	......	1832.	D	co
mexicànum *Otto*	Mexican	♣	△	un	1½	ap	...	Mexico	1832.	D	co
1867*a* CHEIRI′NIA.											
crepidifòlia *Lk.*	Crepis-leaved		◑	or	3	su	Y	......	1831.	S	co
112. COMMELIˋNA.											
clandestìna *Mart.*	inobvious-*flwd.*	✱	|△|	un	1	ju	Bsh	Brasil	1832.	O	l.p
1386. DIA′NTHUS.											
Seguièrii	Seguier's	£	△		...	...	...	Switzerland	1832.	C	co
1685. DRACOCE′PHALUM.											
pinnàtum	pinnate-*lvd.*	♃	△		...	...	...	......	1832.	D	l.p
794. *GENTIAˋNA* decúmbens *Pall.* decumbent.											
Gébleri	Gebler's	♃	△	or	...	...	...	Russia	1832.	D	l.p
HYMENOPY′RAMIS.											
brachiàta *Wall.*	arm-*branched*	♣	□		...	...	...	E. Indies	1832.	C	l.p
2345. *I*′NULA.											
glàbra *Bess.*	smooth	♃	△	or	...	...	...	......	1831.	D	co
2136. *LA*′THYRUS.											
ciliàtus *Guss.*	ciliate		○	un	...	au	Pa	Naples	1832.	S	co
2008. LAVA′TER*A*.											
salvitellénsis *Brign.*			◑	el	6	su	Pk	......	1831.	S	co
1985. *L*UPIˋNUS.											
exaltàtus	tall		⊔	or	...	...	...	......	1832.	S	1
2356. MUTI′S*IA*.									[Bot. mis.		
ilicifòlia *Hook.*	Holly-leaved	ħ	⊔	or	10	...	...	S. America	1832.	C	l.p
ODONTARRHEˋNA.											
microphýlla *Led.*	small-leaved	ħ	△	pr	½	...	...	......	1832.	C	l.p
1966. *O*NOˋNIS.											
Denhárdtii Ten.	Denhardt's		◑		1	au	Y	Naples	1832.	S	co
ápula *Ten.*	Apulian		◑		1	au	Y	Naples	1832.	S	co
97. OXYBAPHUS.											
chiliénsis *Bat.*	Chilian	✱	△	or	1	aut	Li	Chile	1832.	S	l.p
2861. PARIETAˋRIA.											
micrántha	small-flowered		○	un	8	...	G	......	1832.	S	co
611. *P*HYTEUˋMA.											
*l*imoniifòlium	Limonium-leaved	£	△	or	...	...	...	Switzerland	1832.	D	co

[This, probably, is but a synonyme of *P.* strictum *Bot. Mag.* t. 2145. and *Hort. Brit.* No. 5173., as Sir J. E. Smith, in a letter dated July 29. 1826, informed me that *P. l*imoniifòlium *Flora Græca*, t. 218., and Campánula *l*imoniifòlia *L.*, are but synonymes of the *P.* stríctum; which has been figured in the *Bot. Mag.* t. 2145. — *J. D.*]

1210. *P*OLY′GONUM.											
oxyspérmum *Led.*	sharp-seeded	♃	△	un	...	...	...	Russia	1831.	D	co
1737. PRE′MNA.											
aspérrima *Wall.*	roughest		□		...	...	...	E. Indies	1832.	C	l.p
1637. *R*ANU′NCULUS.											
gargánicus *Ten.*	Garganian	✱	△	or	½	au	Y	Naples	1832.	D	co
angulàtus *Ten.*	angulated	✱	△	or	...	...	...	Naples	1832.	D	co
1095. RICHARDSOˋN*IA*.											
stellàta *Sibbald*	starry		○	un	1	jl	W	......	1832.	S	co
1126. *R*UˋMEX.											
montevidénse *Spr.*	Monte Video	♃	△	un	...	...	...	S. America	1831.	D	co
819. *S*CA′NDIX.											
brachycárpa *Guss.*	short-fruited		○	un	1	aut	W	Naples	1828.	S	co

[This was raised in 1828, in the Botanic Garden at Bury St. Edmunds, from seeds given to that institution by Mr. Hunneman. Mr. Haworth, to whom, in the same year, I sent specimens, replied on August 2. 1833, " new to me and my books." — *J. D.*]

2239. SERRA′TULA.											
glaúca *Led.*	glaucous	♃	△	or	...	...	...	Russia	1831.	D	l.p
591. *S*OLAˋNUM.											
grácile *Otto*	slender		⊔	pr	...	...	...	......	1832.	C	l.p
1849. *T*HLA′SPI.											
rivàle *Presl*	river's side	£	△	pr	½	mr	W	......	1832.	D	l.p
1749. *V*ERBEˋNA.											
glandulòsa *Moris.*	glandulated	♃	|△|	un	2	su	Pa	......	1832.	C	l.p
2133. *V*I′CIA.											
multicaúlis *Led.*	many-stemmed	♃	△		...	...	...	Russia	1832.	D	l.p
pimpinelloìdes	Pimpinella-*lvd.*	♃	△		...	...	...	......	1832.	D	co

Since I sent the former list [published p. 111.], I have ascertained the following authorities, and two or three facts respecting them: — *A*sphódelus microcárpus *Vis.* Dalmatia; Chlòra serótina *Koch*; Cinerària thyrsoìdea *Led.* Russia; *C*orydàlis longiflòra *Led.* pr. ½ f.mr Wsh; *Dorónicum* macrophýllum *H. Got.*; *D*ràba stylàris *Gay*; *G*àlium arenàrium *Loir*; *H*ieràcium Jacquínii Vill.; *L*epidium cordàtum *W.*; *S*èdum altàicum *Fisch.*; *Verónica* Michaúxii Lam.

Art. IV. *Retrospective Criticism.*

Corrections to preceding Numbers. — In Vol. VIII. p. 682., 9th line from the bottom, for "too hardy in their growth," read "too tardy in their growth." In Vol. IX. p. 124., in the Rev. Mr. Bree's remarks on the very slow rotting of the *Lémnæ*, for "a mos of dried *Lémna*," read "a mass of dried *Lémna*."

Narcissus (Corbulària) Bulbocòdium is not usually so hardy as represented in Vol. VIII. p. 724. and Vol. IX. p. 118. — Notwithstanding what is stated by J. D. (Vol. VIII. p. 724.), and by Selim (Vol. IX. p. 118.), of the hardihood of *Narcíssus* Bulbocòdium, I have always found it difficult to preserve in the open border. I have had the plant repeatedly; but with me it seldom lives more than two or three years, and gradually dwindles away. I should be glad to know how to make it thrive in the border. From Selim's remarks, neither frost nor wet seems to be injurious to it in a Warwickshire garden. — *W. T. Bree. Allesley Rectory, Warwickshire, March* 8. 1833.

Mr. Hayward's Method of training the Peach Tree. (Vol. VIII. p. 653.) — Sir, We have had in this part of Ireland a very fine summer and autumn; and heavy crops of fine-flavoured fruit, especially peaches. I gathered 101 dozen and ten peaches from four trees. And now, Sir, is it not high time that Mr. Hayward's plan of training trees (Vol. VIII. p. 653.) should be thoroughly examined and put into practice, if it possesses those superior properties which its apparent complexity would seem to render doubtful. When, however, Mr. Hayward states that 700 peaches were "brought to maturity" upon a tree of five years' training only, surely, however strongly we may be prejudiced in favour of the fan shape, it is high time that such a prejudice should be thrown overboard; and I, for one, will endeavour to give his method a fair trial. I have one tree, which has been no less than ten years planted against a very good wall with a south-east aspect; and although I did not find it exactly a fan shape, yet it is so now, with the bearing wood trained from the upper side of the principal leading branches. This tree covers more than 400 square feet; and ripened, this season, 450 red Magdalen peaches, from 6 oz. to 8 oz. each. I thought this was as good a crop as need be; and yet how inferior to Mr. Hayward's! and, like him, I not only do not crop my peach borders, but, besides the rich manure spread over them, I soak them well, in dry weather, with liquid manure; and all this, too, upon a soil which may be considered as decidedly a peach soil; and sure I am that I left quite enough of fruit for the tree to mature, and to make strong vigorous shoots for the ensuing season. I should think it would be satisfactory if Mr. Hayward could tell us the average weight of his peaches; for, if his equal the above, there must be some serious defect in Mr. Seymour's method to account for such a difference, such a marked discrepancy. I am, Sir, yours, &c. — *J. Elles. Palace Gardens, Armagh, Dec.* 24. 1832.

Mr. W. Green's Method of training Pear Trees (Vol. VIII. p. 539.) *is not new.* — Sir, Allow me to inform you that the method of training pear trees, described by Mr. W. Green, jun., is by no means a new one. I have seen pear trees, upwards of thirty years old, trained on precisely the same principle; differing, however, in appearance from the figures of Mr. Green (Vol. VIII. p. 539, 540.), by the main branches being subdivided nearer to their bases, and by the curves being much more regular and agreeable to the eye. In training the trees when young, nails and lines were never found necessary: they were simply trained in the fan manner, until the branches were sufficiently strong to bear the change of position, when the points were brought down to a horizontal direction. — *S. B. W. Jan.* 1. 1833.

Growing and curing Tobacco in Britain. (p. 121.) — Sir, E. S. again speaks on the growing and curing of tobacco (p. 121.), and requests that I will send a portion of my production for your examination. This I readily do; and the more readily, that he may be satisfied I did not tender my remarks on growing and curing (Vol. VIII. p. 491.) without at least having attempted the attainment of these objects; for it is certain I never contemplated showing it in competition with any other. It appears that E. S. has improved in his management of late; for, in his previous letter (Vol. VIII. p. 42.), he asks for information on the subject; and, in his last (Vol. IX. p. 121.), he says " he is convinced, by long experience, as well as by the testimony of others, that his method is right." As to the same means being applicable for making hay and preparing tobacco, I beg leave to differ from your correspondent as well as others; for this reason, that tobacco should be fermented at intervals during the process of drying, to destroy nearly the whole of its greenness and accompanying juices before it is stowed away, when it should resume a glow of warmth; consequently, the dark green colour of that sent to you by E. S. I do not look upon to be a recommendation. My observation, that it was not equal to that imported, could be understood only as applying to my own. I wish to take this opportunity of thanking E. S. for stating the result of his experience. He says, it does not suit him to let all the world know where he is. With respect to myself, it signifies but little; and, as I have no wish to send you any thing under false colours, I will fill up the vacancy, and subscribe myself, Sir, yours, &c. — *C. Austin, Gardener to Admiral Sir B. H. Carew. Beddingford Park, Surrey, Feb.* 27. 1833.

The tobacco sent, as well the uncut as cut, is, we think, superior to that sent by E. S.: it has less of the sweetly fragrant scent, but an odour more strongly narcotic. A smoker, to whom some of the cut was given, reports it about equal in strength to the Orinoco of the shops; and that it forms a pleasant mild-flavoured tobacco. The gentleman by whom that sent by E. S. was tried agrees in this opinion, and deems it much stronger than E. S.'s. On chewing it, he found it almost as strong as shag tobacco; but less so than pigtail, the kind he usually chews; and less agreeable, as, from its being untwisted, it softened and passed away too rapidly. A small sample of C. Austin's, cut and uncut, is left at 39. Paternoster Row, for E. S. to send for if he pleases. — *S.*

Art. V. *Queries and Answers.*

Dissolving Caoutchouc in Pyroligneous Ether. — Sir, In answer to the enquiry of Dr. Wm. Hamilton (Vol. VIII. p. 735.), as to " what is the mode of dissolving caoutchouc in pyroligneous ether, and where the latter can be obtained ? " I beg to say that pyroligneous ether is a product of the distillation of wood in the manufacture of pyroligneous acid; and is to be obtained from such manufactories, where it is distilled from tar, for the use of hatters, who consume a large quantity of it in making varnishes for, I believe, silk and waterproof hats. Its price here, in Dublin, is 10*s.* per gallon. The most convenient mode of dissolving caoutchouc in it is in a tolerably capacious flask; to the neck of which another is ground, having an opening, also, for a safety-tube, containing a little mercury. The lower flask, containing the ether and Indian rubber, is to be heated in a water-bath, and a jacket of bibulous paper dropped over the upper flask, and kept moist by dropping water from a funnel on it: by which arrangement, the ether, which is extremely volatile, will be condensed, and continually returned upon the caoutchouc. Those who cannot provide such an apparatus may effect the same purpose in a large phial bottle, by loosely corking it, and carefully applying the heat. The Indian rubber very soon dissolves; and, as different specimens require various quantities of ether for complete solution, the best way is to make small additions, until a saturated solution is obtained. The reason caoutchouc will not dissolve properly in sulphuric ether is in consequence of its containing some alcohol, from which it requires to be freed by repeated washing; for alcohol not only will not dissolve Indian rubber, but will actually precipitate it from its ethereal solutions. The solution in pyroligneous ether, when well made, is colourless and transparent, the impurities of the caoutchouc being always left behind. The varnish, when saturated, must be applied with great rapidity and evenness of stroke, otherwise it clogs. When it remains tuskey or clammy, the varnished article should be exposed to a current of steam; which soon carries off the ether, but leaves the caoutchouc unacted upon; and firmly cohering in its solid state. A solution of Indian rubber may also be made in Cajeput oil, which, for some purposes, promises advantages over that in ether. Turpentine is a bad solvent of it; but, when used, the application of the current of aqueous vapour will always dry the varnish. For the purpose of varnishing cord, or other coarse matters, for horticultural or other uses, the solution of the Indian rubber, in pyroligneous ether, may be mixed with an equal bulk of drying oil, and the matters to be varnished either dipped into it, and drained out, or brushed over. I shall be happy to give your correspondent any further information in my power; and am, Sir, yours, &c.— *Robert Mallet, Capel Street, Dublin. December,* 15. 1832.

On preserving Cape Heaths from Mildew. (Vol. VIII. p. 736.) — Sir, I have an extensive collection to attend to, and, perhaps, for a private collection, the first in England. My mode of treatment is as follows: I keep them in the green-house both summer and winter; I take especial care that their tops never get wet, and also that the branches are kept clear from damp, dead leaves, insects, and all other kinds of filth attendant on decayed leaves, &c.; and for this purpose I use a small brush, such as painters usually paint windows with: I use it quite dry, and as often as necessity requires; I find, from experience, that the natural consequence of the neglect of this treatment is the mildew, particularly in low situations. If one of my plants happen to take the mildew, I immediately remove it into a separate house, quite apart from the others, or into a cold frame; for, if it were suffered to remain, it will infect every plant in the heathery, and in time destroy the whole. I then take a little flour of sulphur, and mix with it a little soot, when it will become of a dark green colour (sulphur alone would do just as well, but it is not so pleasant to look at to a delicate eye). I then put it into a tin box, that has got a lid perforated with small holes, or what is commonly called a flour duster; I dust the whole of the plant with this mixture; and, if this dusting has not the effect of removing it (and sometimes it is a long time in clearing the plant; I have had plants under this operation for three months), you may take the pot, and lay it on its side, so that the branches will lie on the ground, and then take a syringe, and wash the plant well; afterwards place it in a situation where the wind will dry it quickly, then dust it as before. This last mode can only be practised safely in dry and warm weather. I hope these few hints will prove useful to R. W. (Vol. VIII. p. 736.), and others of your readers. I am, Sir, yours, &c. — A *Constant Reader. Manchester, Feb.* 23. 1823.

Mildew in Cape Heaths; Causes and Prevention. — In reply to R. W.'s query (Vol. VIII. p. 736.), I may state, the principal causes of mildew among Cape heaths are, first, exposing the plants, whilst out of doors during summer, to the mid-day sun; and, secondly, the pots getting overdrenched with the heavy autumnal rains before they are housed. There may be others which combine with these to aggravate the disease.

The best preventive is placing the plants, during summer, behind a wall, hedge, or other shelter, so that they may be shaded from the rays of the sun for five or six hours in the hottest part of the day, without having recourse to awnings of any kind: likewise to house them early in autumn, in houses where the sashes can be drawn off in fine weather, and put on to protect them from heavy rains. For the more delicate species, generally kept in pits and frames in summer, the best preventive is to use lights glazed with green glass, keeping the lights on from 9 o'clock in the morning till 6 in the evening, and giving plenty of air by tilting the lights up at the back of the pits and frames, but never to use shading of any description. The lights to be drawn entirely off during the night, except in rainy weather. With this mode of treatment, slight waterings overhead occasionally are beneficial.

I believe that heaths, or ericas, are nearly exempt from mildew in Scotland, owing to their summers being cooler than in England. Nearly all the varieties of the garden pea are exempt from mildew there, whilst all varieties here are more or less subject to it in autumn.

I do not consider a pure country air as being indispensably necessary to the growth of this graceful family of plants, but believe they may be successfully cultivated within the range of the smoke of large towns. Some of the more robust-growing species would be well worth trying out of doors in a suitable soil in Cornwall. Wishing that some one may be able to give a more satisfactory answer than mine to R. W., I am, Sir, yours, &c.—*E. B. Feb.* 13. 1833.

What are the fittest Situations and Soils, &c., for acclimatising Exotic Plants in? — Sir, The great number of showy flowering plants introduced of late years, from wàrmer climates, into this country has stimulated gardeners to plant out more freely, into the open ground, spare plants from the houses, either for the purpose of enlivening the flower-garden during summer and autumn with their flowers, or for the purpose of detecting such as will endure the rigour of our winters, and add permanently to the number of our hardy shrubs and herbaceous plants. If the object of planting out be for the former purpose only, it will be attended with considerable success, however unfavourable the soil and situation may be, when the selection is made from herbaceous plants, and the free-flowering soft-wooded frutescent genera, such as *O'*xalis, Lobèl*ia*, Cinerària, Pelargònium, Calceolària, *S*álvia, Maurándy*a*, *A*nagállis, Lophospérmùm, &c.

For the purpose of acclimatising, the favourable situations are comparatively few: therefore, yourself, Sir, or some of your correspondents, would, I conceive, render the science of gardening a useful service, by indicating the conditions and provisions necessary to make a situation favourable for the successful acclimatising of tender plants; such as soil, shelter, altitude, whether upon the coast or inland, the latitude of the place not always being a sure guide, there being probably as many favourable situations for the purpose to be found upon the banks of the Forth and the Tay as upon the banks of the Thames. The required information would induce gardeners, in favourable places, to plant out house plants more freely, of the hard-wooded genera, such as Caméll*ia*, Melaleùca, Hàke*a*, Leptospérmum, Grevíll*ea*, *E*rìca, Edwárds*ia*, &c. A description of situations most unfavourable for the purpose would also be a consolation to gardeners living in such situations; as serving to show to their employers the impossibility of their competing with perhaps even a near neighbour living in a more favourable locality. I am, Sir, yours, &c. — *E. B. Feb.* 13. 1833.

A Remedy for the Attacks of Insects on Oak Trees, in the leafing season, is enquired for by J. D. S., of the Beulah Spa, Norwood, Surrey. — *Jan.* 9. 1833.

A new Liquor for destroying Insects, it is said, has been invented by some gardeners, or nurserymen, at Liverpool. Can you give us any information on the subject? *Robert Simpson. The Lodge, near Broadway, Gloucestershire, Jan.* 12. 1833.

The inventors of this liquor are Mr. Taylor and Mr. Rollins. What the composition is, they keep a secret; but they have sent us a cask of it, which we shall try, and then report upon. — *Cond.*

Art. VI. *Covent Garden Market.*

The Cabbage Tribe.	From			To		
	£	s.	d.	£	s.	d.
Plants, or Coleworts, p. doz.	0	3	0	0	0	0
Savoys, per dozen - -	0	1	6	0	2	0
Brussels Sprouts, per ½ sieve	0	1	6	0	2	6
German Greens, or Kale, per dozen - -	0	0	9	0	1	0
Broccoli, per bunch:						
White - - -	0	1	6	0	2	0
Green - - -	0	0	9	0	1	6
Purple - -	0	0	9	0	1	0
Legumes.						
Kidneybeans, forced, per hundred - -	0	2	0	0	3	0
Tubers and Roots.						
Potatoes - per ton	4	0	0	4	10	0
Potatoes - per cwt.	0	4	0	0	4	6
Potatoes - per bushel	0	2	0	0	2	3
Kidney, per bushel -	0	2	6	0	0	0
Scotch, per bushel -	0	2	6	0	0	0
New, per pound -	0	1	6	0	2	6
Jerusalem Artichokes, per half sieve - -	0	1	0	0	1	3
Turnips, White, per bunch	0	0	1	0	0	2
Carrots, per bunch:						
Old - - -	0	0	4	0	0	6
Young - - -	0	0	9	0	1	6
Horn - - -	0	0	6	0	0	8
Parsneps, per dozen -	0	0	9	0	1	0
Red Beet, per dozen -	0	1	0	0	1	6
Skirret, per bunch -	0	1	6	0	0	0
Scorzonera, per bundle -	0	1	6	0	0	0
Salsify, per bunch - -	0	1	6	0	0	0
Horseradish, per bundle -	0	2	0	0	4	6
Radishes, Red, per ½ dozen hands (24 to 30 each) -	0	1	6	0	0	0
The Spinach Tribe.						
Spinach per sieve -	0	2	0	0	2	6
Spinach per half sieve -	0	1	3	0	1	6
Sorrel, per half sieve -	0	2	0	0	0	0
The Onion Tribe.						
Onions, old, per bushel -	0	1	6	0	2	6
For pickling, per ½ sieve	0	1	6	0	2	0
When green (Ciboules), per bunch . -	0	0	4	0	0	5
Leeks, per dozen bunches	0	0	9	0	1	3
Garlic, per pound - -	0	0	6	0	0	8
Shallots, per pound - -	0	0	8	0	0	0
Asparaginous Plants, Salads, &c.						
Asparagus, large, per hund.	0	8	0	0	12	0
Middling - -	0	4	0	0	0	0
Spruce, or small -	0	3	0	0	0	0
Lettuce, per score:						
Cos - - -	0	1	6	0	2	0
Cabbage - -	0	0	6	0	0	9
Endive, per score -	0	1	6	0	0	0
Celery, per bundle (12 to 15)	0	0	6	0	2	6
Small Salads, per punnet -	0	0	2	0	0	3
Watercress, per dozen small bunches - - - -	0	0	4	0	0	6

Pot and Sweet Herbs.	From			To		
	£	s.	d.	£	s.	d.
Parsley, per half sieve -	0	1	6	0	2	6
Tarragon:						
Forced, per dozen bunches	0	6	0	0	0	0
Dried, per bunch -	0	0	0	0	3	0
Fennel, green, per dozen bunches - -	0	3	0	0	0	0
Thyme, per dozen bunches	0	2	0	0	0	0
Sage, per dozen bunches -	0	2	0	0	0	0
Mint, per dozen bunches -	0	5	0	0	9	0
Marjoram, dried, per dozen bunches - -	0	0	10	0	1	0
Savory, per dozen bunches	0	0	10	0	1	0
Basil, per dozen bunches	0	1	3	0	1	6
Rosemary, green, per dozen bunches - -	0	4	0	0	0	0
Lavender, dried, per dozen bunches - -	0	2	0	0	0	0
Tansy, per dozen bunches	0	1	0	0	0	0
Stalks and Fruits for Tarts, Pickling, &c.						
Rhubarb Stalks, forced, per bundle - - -	0	1	0	0	1	6
Edible Fungi and Fuci.						
Mushrooms, per pottle -	0	1	0	0	1	6
Morels, dried, per pound -	0	14	0	0	0	0
Truffles, per pound:						
English - - -	0	12	0	0	0	0
Foreign - - -	0	14	0	0	0	0
Fruits.						
Apples, Dessert, per bushel:						
Nonpareil - -	0	10	0	1	5	0
Reinette grise - -	0	12	0	0	0	0
Golden Knob - -	0	6	0	0	10	0
Baking, per bushel -	0	4	0	0	7	0
American, per bushel -	1	5	0	1	10	0
Royal - - -	0	5	0	0	0	0
Pearmain - -	0	6	0	0	8	0
Pears, Dessert, per ½ sieve:						
Colmars - - -	0	15	0	0	0	0
Chapman's Colmars -	1	10	0	0	0	0
Bon Chretiens, per 100 -	1	10	0	0	0	0
Baking, per half sieve -	0	5	0	0	0	0
Almonds, per peck -	0	6	0	0	0	0
Cranberries, per gallon -	0	3	0	0	4	0
Chestnuts, French, per peck	0	2	0	0	8	0
Pine-apples, per pound -	0	6	0	0	12	0
Cucumbers, Frame, p. brace	0	6	0	0	10	0
Oranges per dozen -	0	0	6	0	2	0
Oranges per hundred	0	3	0	0	14	0
Bitter Oranges - -	0	6	0	0	16	0
Lemons per dozen -	0	0	6	0	2	0
Lemons per hundred	0	3	0	0	12	0
Shaddocks, each - -	0	1	0	0	2	0
Sweet Almonds, per pound	0	2	3	0	2	6
Brazil Nuts, per bushel -	0	12	0	0	16	0
Barcelona Nuts, per peck -	1	0	0	0	0	0
Spanish, per peck - -	0	12	0	0	0	0

Observations. — The weather, in the latter part of February, and early in March, was very mild and open; the market was abundantly supplied with the articles usual at this season, of excellent quality, and at moderate prices: the change of weather with severe frost has effected, as yet, but little alteration; but its consequences must be felt in the ensuing months, by retarding the spring crops, which may give the growers of forced vegetables a chance for better prices; at present they are suffering heavy losses by the very low prices which have been made of their articles, such as asparagus, seakale, French beans, &c. &c. From whatever cause it may proceed, the prices are generally so moderate, as to afford the grower little reward for his labour and expenses in producing articles that heretofore used to compensate him well. Occasionally good prices are obtained, but generally otherwise. Onions, which frequently at this season used to make an important item of sale, are now so abundant as to be quite unsaleable, in any quantity, at any price; and, I presume, many thousands of bushels will be wasted and thrown away, or planted for seed; the price of which is now so low as to afford little prospect of remuneration. Potatoes are realising much better prices than in the autumn, and are in demand, with the prospect of continuing so, as the spring supply of other vegetables will, very probably, be late. Broccoli is not supplied so largely as usual at this season; consequently it is in demand, at better prices: as the season advances it will probably become scarce. Seakale and asparagus (of course forced) are more enquired for, and, as the season advances, will be more in request, before it is possible they can be supplied naturally, in any large quantities. The market has been supplied most abundantly with oranges, of good quality, and at very low prices; and, from the great stock in hand, will continue to be so; the importers will necessarily be heavy losers. Apples are in good supply, and, considering the season, at very moderate prices: very few have as yet been imported; nor will the prospect warrant the risk during the remainder of the present season. — *G. C. March* 16. 1833.

ART. VII. *Horticultural Society and Garden.*

Feb. 5. 1833. — *Read.* A paper on the cultivation of the fig tree, by Sir C. M. L. Monck, bart. A note upon the Brabant bellefleur apple, by J. Lindley, Esq.

Exhibited. Cucumbers, and an Enville pine-apple of 3 lbs. weight, from Mr. George White, F. H. S. A new seedling warratah camellia, from Mr. Thomas Wells, gardener to J. Wells, Esq., F. H. S.

From the Garden of the Society. Flowers: Chimonánthus fràgrans, fràgrans parviflòrus, fràgrans grandiflòrus; Justícia coccínea and *Adhátoda*, Echevèria gibbiflòra, Gastònia palmàta. — Fruit. Apples: Reinette du Canada, Court pendu plat, Dutch Mignonne, Æsopus Spitzemberg, Scarlet Nonpareil, Green Nonpareil, London Pippin, Finouillet Rouge, Belledge Pippin, Api Panaché, Rymer, Norfolk Beaufin, Royal Reinette, Alfriston, Norfolk Paradise; Grosse à cuire, a good kitchen apple; Api Gros, Pennock's Large Red Winter, Black Annette, Tulip. Pears: Easter Beurré, Winter Bon Chrétien. Berries of Passiflòra quadrangulàris.

Feb. 19. — *Read.* A Paper on the Growth of Dwarf Apple Trees, by Mr. Thomas Blake. Notes upon some French stewing Pears, by Dr. Lindley.

Exhibited. Twenty-four sorts of apple, from Mr. Joseph Kirke. From Messrs. Chandler, a hybrid amaryllis, Cypripèdium venústum, E'pacris nivàlis and impréssa, Camèllia concínna, Wíltoni, pompone, Press's single white-striped, Gray's Ròsa múndi. A collection of flower-pots of various patterns, from Sir Frederick Fowke, Lowesby Hall, Leicestershire.

Also, from the Society's Garden. Ruéll*ia* microphýlla, Azàlea índica, a splendid hybrid variety of; Begòn*ia* ùrens, Gesnèr*ia* Douglàs*ii;* Caméll*ia* *a*lthææflòra, imbricàta, *a*nemoneflòra álba; Justíc*ia* flavícoma, *E*uphórb*ia* bilàbris, 15 sorts of apple, 3 sorts of pear, black Spanish radish, 5 sorts of apple from Mr. G. Lindley, and a radish between the black Spanish and white turnip radish, from A. Seton, Esq.

Distributed. Grafts of Knight's early black, and the Elton cherries, of the Washington and Reine Claude violette plums, and of Hubbard's pearmain apple.

March. 5.—*Read.* Notes on the Maclùr*a* aurantìaca, or Osage apple, by Mr. Wm. Skirving. A Paper on the preservation of seeds, by Mr. C. M. Willich.

Exhibited. Queen Caroline and aromatic russet apples, and unnamed pears, from Richard Brook, Esq. Hybrid rhododendron, between *R.* arbòreum and *R.* catawbiénse, from Mr. Henry Burn, Tottenham Park. Hamburgh, Black Tripoli, and Charlesworth Tokay grapes, Wollaton pippin, and *R*hèum undulàtum, from Mr. R. Buck of Blackheath. Maclùr*a* aurantìaca, or osage orange or apple, from Lord Stanley. Models of the spouts of Chinese watering-pots, and an improved rose for water-pots, from John Reeves, Esq. Azàlea índica, from Mr. Snow, gardener to J. H. Palmer, Esq. Camellias, and *C*ýclamen còum and vérnum, from Messrs. Chandler.

From the Society's Garden. Flowers: *H*elléborus odòrus, a hybrid Azàlea indica, Caméll*ia* *a*nemoneflòra álba and Colvíll*i*, crocuses, Thunbérg*ia* coccínea, *A*càcia decúrrens, *R*hododéndron daùricum sempervìrens.

Distributed. Grafts of Beurré diel, Easter beurré, and Beurré rance pears, and of Boston russet and Brabant bellefleur apples.

Among the kinds of fruit exhibited from the garden, on January 15., as reported, p. 128., the Parmentier is a sort of russet; Redding's Nonpareil, a small but high-flavoured kind. Pears: of the Easter Beurré, a few were sent, but the generality were not yet in perfection; Bon Chrétien Turc, a very abundant bearer as a standard, growing to a large size, said to be a good stewing pear. The Downton Nonpareil Apple, from T. A. Knight, Esq. This is an excellent, sharp, rich-flavoured, handsome apple, highly deserving of notice. The first time of its being exhibited.

ART. VIII. *Provincial Horticultural Societies.*

HUNTINGDONSHIRE.—*Huntingdon Horticultural Society. July* 25. 1832. Carnations, picotees, georginas, and fruits were the subjects exhibited. This Society admits competitors from any place, under certain regulations. Mr. Wood, Mr. Franklin, and Mr. Twitchett (Cambridge), were distinguished winners among the prizes offered for flowers; and Mr. Hyland won a majority of those offered for gooseberries. (*Cambridge Chronicle*, Aug. 3. 1822.)

Manchester Floral and Horticultural Society.—*July* 30. 1832. This show is described as inferior to former ones. Carnations, georginas, stove, greenhouse, and hardy herbaceous plants, fruits, and vegetables were exhibited. A New Providence Pine weighed 12 lbs. 5 oz. One of the stove plants shown was Portlánd*ia* grandiflòra. The gooseberries were large, and in great variety and abundance: the kinds which won prizes are, Roaring Lion, Gunner, and Eagle. In the carnation family, the best scarlet bizarre was Walmsley's William the Fourth; the best pink bizarre, Duke of Kent; the best purple flake, Turner's Princess Charlotte; the best rose flake, Fletcher's Duchess of Devonshire; the best purple-striped picotee, Albion; the best red-feathered picotee, Russell's Incomparable; the best scàrlet flake, Dr. Barnes; the best purple-feathered picotee, Princess Victoria. In addition, Cartwright's Rainbow, Admiral Rodney, Mount Etna, Favourite, and Jasper formed part of a pan of carnations, to which (shown by Mr. John Ashworth) the amateur subscription cup was awarded. (*Manchester Guardian*, Aug. 4. 1832.)

Manchester Botanical and Horticultural Society.—Sept. 10. 1832. This show for fruit and vegetables was held in the Botanic Garden. "Whether we consider the quality of the productions which were then exhibited, or the number and respectability of the company assembled, it has seldom been our pleasure to advert to a more interesting occasion. When it is remembered that but little more than two years have elapsed since the garden was opened to the subscribers, and that at that period it was in no great degree of forwardness, undoubtedly very considerable exertions have been made to advance it to its present state. Each member having been supplied with an additional ticket for the admission of his friends, it is calculated that upwards of 3000 persons were thus enabled to participate the enjoyment of the delightful scene." A seedling pine, named the Black Prince, from the garden of John Entwisle, Esq., was much admired, as were grapes from the houses of Thomas Trafford, Esq. The prizes awarded are fifteen, and of these thirteen are to esquires, one to the Rev. John Clowes, and one to Mr. J. H. Stanway. The following remarks doubtless relate to the garden: — "We understand that the present list of hereditary members amounts to 404; that each hereditary share is now 25*l.*, and two guineas annual subscription; eighteen being the number of life members, the subscription of which class will continue at the present rate of 10*l.*, and 2*l.* 2*s.* per annum, until the number of 200 shall have been obtained, when this subscription also will be advanced to all individuals who may subsequently enter the society." (*Wheeler's Manchester Chronicle*, Sept. 15. 1832.)

Rochdale Floral and Horticultural Society.—April 25. 1832. A good many auriculas were shown, and Booth's Freedom won the premier prize. Various flowering plants, both tender and hardy, were exhibited. Of these we mention, tender, Strelítz*ia* regìnæ, Corræ'*a* speciòsa, Metrosidèros lanceolàta, *C*rìnum austràle, Burchéll*ia* capénsis, and Ixòr*a* coccínea; hardy, Tríllium grandiflòrum, Claytòn*ia* virgínica, Sanguinària canadénsis, *R*hododéndron Chamæcístus, and Menziès*ia* cærùlea.

May 30. Tulips were the leading articles at this show. Comte de Vergennes won the premier prize. Among the green-house plants, Boròn*ia* serrulàta, and Erythrìna *C*rísta-gálli each won a prize, as did other plants. Among the hardy plants which won prizes we name *D*odecàtheon Meád*ia* var. élegans, *O'*robus vàrius, Prímula farinòsa var. álba, *O*nósma taúricum, Ammýrsine *b*uxifòlia.

July 11. 1832. Pinks and ranunculuses were the primary objects of attention at this show. Suwarrow won the premier prize of the pinks. Among the tender plants which won prizes, we name *H*ibíscus *R*òsa sinénsis, and *L*ílium longiflòrum: the latter plant is commonly deemed hardy, but a little shelter may be advantageous. Of the hardy plants, Campánula macrántha, Cypripèdium spectábile, *L*ílium cóncolor, Andrómed*a* pulverulénta and *cassini*fòlia, and Kaulfúss*ia* *a*mellòìdes are those which please us best amongst those exhibited. Besides these, there were exhibited pelargoniums, roses, fruits, and vegetables.

Sept. 20. Carnations and picotees were numerously exhibited at this show. There were, besides, georginas, house and hardy flowering plants, fruits, and vegetables. Among the prize-rewarded house plants were *C*lèthra arbòrea, Erythrìna *C*rísta-gálli and *N*èrium spléndens. Among the prized hardy plants, Gaillárd*ia* aristàta, Menzièsi*a* *p*oliifólia, and Potentílla floribúnda.

Northamptonshire. — *Northamptonshire United Horticultural Society. June* 29. The show was well supplied with plants and flowers, including many varieties of pink. Among fruits, pines, grapes, melons, and strawberries were shown. Mr. Atkins's hybrid calceolaria (p. 724.) won a prize; as did a Cèreus *p*hyllanthöìdes from Lord Southampton's, on which were from 300 to 400 blossoms. Rhatford's gigantic rhubarb won an extra-prize; and five cottagers' prizes were awarded. (*Northampton Free Press*, July 7. 1832.)

Aug. 27. This show was richly furnished; and the carnations, picotees, and georginas exhibited were numerous. There were also roses, cockscombs, balsams, stove plants, green-house plants, geraniums, and hardy herbaceous plants; a good supply of fruits; and some vegetables. The specimens particularly worthy of notice were some extraordinarily fine pines from Earl Spencer's; some very fine grapes from E. Bouverie, Esq., one berry of which measured 5 in. in circumference. The cottagers' specimens were particularly fine, and the competitors very numerous. (*Northampton Mercury*, Aug. 4. 1832.)

Somersetshire. — *Bristol and Clifton Horticultural Society. July* 24. 1832. Carnations, picotees, fruits, vegetables, and flowering plants, were exhibited. We may mention, among the hardy plants, Hydrángea *q*uercifòlia; *G*ladìolus natalénsis, wrongly called by its name, second as to the time of inventing it, psittacìnus; and Dracocéphalum argunénse. Tender plants, Ròche*a* falcàta; *E*rìca ampullàcea, viridiflòra, and Ewer*iàna*; Amarýlli*s* striatiflòra supérba, Xylophýlla latifòlia; Sinníng*ia* guttàta, Héller*i*, and velutìna; Escallòn*ia* rùbra, and Swainsòn*ia* *g*alegifòlia. There was a contest in the morning between Messrs. Miller, Jacques, Maule, and Chambers, as to who should exhibit the finest carnations for two silver cups; when the umpires awarded the first prize to Mr. Miller, and the second to Mr. Jacques. The flowers were superb, and excelled any in the room. (*Bristol Mirror*, July 28. 1832.)

Sept. 11. There was a copious supply of fruits at this show, and numerous prizes for them were awarded. Of vegetables, flowers (mainly georginas), and plants, there was a pretty good supply. Several cottagers obtained prizes. In the competition for nurserymen's prizes, some choice plants were exhibited; and Mr. Maule obtained upwards of a dozen prizes. Among ericas and other matters exhibited by Mr. Miller, the distinguished honorary secretary of this Society, were variegated yuccas. (*Bristol Mirror*, Sept. 15. 1832.)

Taunton and West Somerset Horticultural Society. — Sept. 5. 1832. Of flowers there appeared a great profusion, particularly of georginas and German China asters. The fruits were in most tempting variety, and the supply was unusually great. Both in fruits and vegetables, some very astonishing productions appeared; but, in the awarding of prizes, size generally yielded to flavour. Among the vegetables exhibited was a very curious serpent cucumber, which, when suspended, had almost the appearance of a green snake. It exceeded 3 ft. in length. The collection at the doors amounted to nearly 20*l*. *G*ladìolus natalénsis won a prize, as did several seedling georginas. Nine prizes were awarded to cottagers. An Enville pine weighed 9½ lbs., and a queen pine 4½ lbs. Of the nurserymen's prizes, Mr. James Veitch and Mr. John Young won nearly all: there were several for seedling georginas of various colours, and two for German China asters. Mr. John Young won a prize for beet (Poirée à carte blanche), and an extra-prize for Polish potatoes. (*Taunton Courier*, Sept. 12.)

Suffolk. — *Ipswich Horticultural Society. Sept.* 11. 1832. This was the fourth show in the present year. The exhibition was decidedly the best of the season, and highly gratifying to an unusually numerous company.

Mr. Woollard, secretary to the Society, read a paper on the cultivation of the hyacinth, by which he had obtained bulbs larger than any of those from Holland. One important point is, to plant the bulb 10 in. below the surface, instead of 3 in. or 4 in., as is the common practice. The thanks of the meeting were voted to Mr. Woollard; and his paper was ordered to be transmitted to the London Horticultural Society. A seedling georgina, striped red and yellow, raised by Mr. Buchanan of Stowmarket, was much admired; as were also some remarkably fine Hawthorndens, grown by Mr. Jackson; indeed, they were allowed to be larger than any ever seen by the horticulturists present. This is the fifth year Mr. Jackson has obtained the prize for fruit from the same trees. (*Suffolk Chronicle*, Sept. 15. 1832.)

Bury St. Edmunds Horticultural Society. — *Sept.* 4. 1832. The display of georginas surpassed every other exhibition of the kind since the formation of the Society. Mr. Buchanan's prize seedling was an object of general admiration: it was crimson striped with yellow, and of perfect form. A seedling of equal merit was shown by Mr. Felgate of Stowmarket: it was the darkest flower the reporter had ever seen, and perfectly formed. The new scarlet-fleshed melon, shown by Mr. Rogers, at Redgrave, won a prize for excellence of flavour. Mr. Marriott of Stowmarket obtained the prize for a seedling nectarine; Robert Bevan, Esq., showed Hedýchium flavéscens in bloom in a pot, to which a prize was awarded; as was one to Mr. Hodson, for a plant of Lobèl*ia* speciòsa. The secretary, Mr. J. H. Payne, obtained the prize for the best box or glass of honey, not less than 15 lbs., obtained by deprivations. Six prizes were awarded to cottagers. (*Suffolk Chronicle*, Sept. 15. 1832.)

Sussex. — *Chichester Horticultural Society. July* 2. 1832. Fruit, flowers, and vegetables were the subjects shown. Some curious bulbs from Africa, the *Psídium* Cattley*ànum*, or guava, loaded with fruit, and varieties of Erythrìna, full blown, were the objects of primary admiration: these were from Lord Selsey's. (*Portsmouth Herald*, July 7. 1832.)

Newick Horticultural Society. — *Sept.* 27. 1832. In sympathy for the exhibiters who did not win prizes, it is remarked: — "It should be remembered by those who may be too sanguine of success, that, where competitors are numerous, the chance of excelling is decreased; but the value of the reward of merit is proportionally enhanced." We notice this remark for the sake of stating that its principle has been acted on in some reports of shows sent us, in which the number of competitors for every prize is stated. Among various apples were some of Shepherd's seedling, from the tree which first introduced the variety into this part of the country; and of Cameron's pippin, so named at this meeting, in honour of Mr. Cameron, who raised it from seed. It was deemed by the judges an excellent apple, and a desirable variety for cultivation. A basket of limes was shown by Mrs. Newton, Southover. A prize was awarded to a beautiful seedling geòrgina, raised by Mr. Read, delicately shaded red and white, and named by the president Read's Radiàta. A hybrid melon, raised by Mr. Taylor, and named the Cottage Prize Melon, was of very superior flavour, and won a prize. Miss P. Partington exhibited a basket of beautiful apples, of a variety raised from seed: these were much admired, and the variety was deemed by the judges as possessed of extraordinary merit: the president named it the Offham Seedling. Georginas abounded at this show: Mr. Cameron displayed nearly 200 varieties, and Mr. Wood upwards of 100. The cottagers' prizes were numerous; and there were, besides, rewards to those whose gardens were found in the best condition at the time appointed for the exhibition. (*Sussex Advertiser.*)

Wiltshire. — *Wilts and General Arboricultural, Horticultural, and Botanical Society. July* 20. 1832. A choice collection of plants, fruits, and vegetables, and some flowers, were exhibited. We name the following: —

Billbérgia nudicaúlis, Gesnèria macrostàchya, Játropha panduræfòlia, Brugmánsia suavèolens, Gladìolus natalénsis, Lílium longiflòrum, Hæmánánthus puníceus. Four prizes were awarded to cottagers; and, of six extra-prizes, one was awarded to Mr. Hamilton for a lemon queen pine.

Sept. 4. A very fine display of flowers, fruits, and vegetables was exhibited. The new bulbous plants belonging to the Hon. Mrs. Alfred Harrison were particularly admired, and the whole collection of fruits was of the first order. In looking through the list, the objects more worthy to be mentioned are, Epidéndrum nùtans, Clitòria ternàtea, Cypripèdium venústum, Bignònia Chamberlàynei, Brugmánsia suavèolens. Six prizes were awarded to five cottagers; and extra-prizes were appropriated to the following objects : — To Hedýchium Gardneriànum, shown by Mr. Downey; to Stachytárpheta mutábilis, shown by Mr. Bryant; for fruit of the *Piménta* vulgàris, shown by Mr. Shennan; for last year's onions, shown by Mr. Langden.

WORCESTERSHIRE. — *Worcestershire Horticultural and Floral Society. June* 19. Among other interesting objects, there were shown, a magnificent Nèrium spléndens, Hóya carnòsa, with pellucid honey-drops hanging from its umbels of waxlike flowers; and on the specimen were several follicles of seeds, an unusual circumstance. A lofty Lavátera arbòrea was exhibited, and a particularly fine Kálmia latifòlia. Mr. Kendall exhibited flowers of a hundred different kinds of Pelargònium. There was a good display of flowers of Ranúnculus.

July 19. Carnations, picotees, georginas, and various flowers were the objects exhibited at this show. Among the fruit were a good many fine gooseberries; and there were currants, raspberries, peaches, nectarines, apples, cherries, and strawberries: the Elton and Chilian kinds of strawberry won the prizes. Among the vegetables we see nought to notice. In the extra-prizes are Hùmea élegans, shown by Arthur Skey, Esq.; Gnaphàlium exímium, shown by Mr. Kendall; citron water-melons, and Cephalonian melons, shown by J. C. Kent, Esq. (*Worcester Herald*, July 28. 1832.)

YORKSHIRE. — *York Floricultural Show. Sept.* 24. 1832. Georginas were mainly the flowers shown; and on a table, in the centre of the guildhall, were arranged upwards of 1500 georgina blossoms in bottles, besides a very large number in trays. A vase of beautiful artificial flowers, the production of Mr. Johnstone, the cook at the Black Swan, was exhibited. The flowers were not made of the usual materials, but cut with a penknife out of the turnip, carrot, and beet-root. Here we saw the rose, the sunflower, the marigold, the ranunculus, &c., tastefully arranged; and this unique specimen of art was much admired, and received a prize. The proceeds of this show, it had been madè known, were to be applied to aid the funds of the dispensary, so much impaired by the prevalence of the cholera in York. A shilling each person (6*d.* for children) was charged at the door; and by this means, by the amount of subscriptions, by the sale of some flowers, and by some prize-money returned, 33*l.* 13*s.* 8*d.* were raised; which, when the amount of prizes awarded, and all expenses, were deducted, left a donation to the dispensary of 12*l.* 15*s.* 10*d.* (*Yorkshire Gazette*, Sept. 29.)

Hull Floral and Horticultural Society. — *Aug.* 6. 1832. The show consisted of carnations, picotees, green-house plants, bouquets, gooseberries, melons, and grapes. In the carnation family, the winning yellow picotees were Goldfinch, Amelia, and Empress of Austria: we have not room for the names of numerous kinds in the other classes. Of gooseberries, the winning kinds, Red, Crown Bob, Roaring Lion, and Sportsman; yellow, Royal Sovereign and Rockwood; white, Eagle; green, Ocean. Nèrium Oleánder and Stapèlia Astèrias won the prizes for green-house plants. (*Hull and Rockingham Gazette*, Aug. 11. 1832.)

Whitby Floral and Horticultural Society. — *Sept.* 25. The first show of this Society, held at this date, was an emulous and satisfactory one. " The Society promises to become quite a favourite institution." (*Yorkshire Gazette*, Sept. 29. 1832.)

SCOTLAND.

Caledonian Horticultural Society. — *Sept.* 5. 1832. Peaches, nectarines, plums, and grapes, from open walls, hot walls, and glazed roofs, were the objects exhibited. The award of prizes we pass over, as the kinds which won them are not new. Of " several uncommon articles of a meritorious character," the following are reported on : — A seedling peach, with yellow flesh, raised by Mr. James Smith, gardener to the Earl of Hopetoun, at Hopetoun House garden, from an American seed: the flavour was excellent. For this production the Society's silver medal was awarded to Mr. Smith, who also exhibited a basket of jargonelle pears, from a standard jargonelle tree engrafted on a common whitethorn. Two seedling nectarines and a seedling peach, from Edmonstone garden, raised by Mr. John Macnaughton, were regarded as promising fruits. Very fine specimens of two seedling grapes, from Erskine House garden, were shown. For these kinds of grape the Society's silver medal was last year awarded to Mr. George Shiells; and the committee had now the gratification to find that the quality of the fruit had improved, as they expected it to do, with the age of the vine. These seedling grapes may now be ranked with those of established character. Two seedling apricots, raised from the Moorpark, by Mr. Archibald Gorrie of Annat gardens, were found to be of a promising character, they being the first produce of trees four years old. Mr. David Brewster, gardener to the Hon. R. Lindsay at Balcarres, displayed specimens of spring-sown Portugal onions, six of them weighing 5 lbs. 2 oz.; and one of them was 14 in. in circumference. (*Scotsman*, Sept. 8. 1832.)

Exhibition at the Experimental Garden at Inverleith. — *July* 5. 1832. From an early hour in the morning, showy exotics were seen continually arriving at the garden : the aggregate assemblage of them filled a stage about 60 ft. long, and this rather crowdedly. An extensive awning covered the whole. Many of the richest shrubby specimens were not sent for competition, but for exhibition only. This was the case, in particular, with those from the royal botanic garden. The medal for the six finest and rarest herbaceous exotics was awarded to Mr. William Brackenbridge, gardener to Mr. Neill, Canonmills, for Tropæ`olum pentaphýllum, Alströmèr*ia* trícolor, Stylídium fasciculàtum, Salpiglóssis pícta, *V*erbèna venòsa, and *N*epénthes distillatòria. Pinks were numerously shown, and the prizes for them well contested. An extra-medal was awarded to Mr. John Street, flower-gardener to the Hon. Mrs. Nisbet, for a collection of seedling roses raised by him in the open border at Beil. Other seedling roses were sent by Mr. John Clephane, at Hailes; and a third collection of considerable merit was produced by Mr. Barnet, from seed sown in thee xperimental garden in 1827. We despair of conveying any idea of the splendid gifts of Flora which adorned the stage: we believe, a richer or more varied exhibition has seldom been witnessed. The most magnificent plants were from the botanic garden under the excellent management of Mr. M'Nab. The Cape heaths, for size and beauty, were altogether matchless, particularly huge bushes of *E*rìca spùria, Dickenson*iàna*, præ′gnans, metulæflòra, and trícolor. E′pacris grandiflòra was very beautiful; and two uncommonly large plants of Kálm*ia* latifòlia, of the white and the pink varieties, covered with a profusion of blossom, attracted every eye. We likewise remarked some exquisite heaths from the collection of Professor Dunbar at Rosepark, particularly *E*rìca flórida álba and *E*rìca tùmida; a very large yellow China rose tree; with Alströmèr*ia* pulchélla, and Gloxín*ia* speciòsa, of large size and great beauty. Mr. Cunningham, the botanical nurseryman at Comely Bank, exhibited some rare and choice articles; among others, Fúchs*ia* globòsa, and Francò*a* appendiculàta, both new plants; and brilliant specimens of Cèreus *p*hyllanthöìdes and speciosíssimus. A noble *Cy̆*cas revolùta, or sago tree, with several fine specimens of the cardinal flower, and a number of rich and showy balsams, were from the admirable nursery of Messrs. Dickson and Co., Leith Walk; and Messrs. Dickson and Sons, of the Inverleith Nursery, had likewise an extensive collection on the stage, including a very large plant of *Petùnia* phœnícea *D. Don*, Cèreus Ackermánn*i*, Maurándy*a* Parkinsòn*i*, with a very complete series of the new hybrid calceolarias. Several fine plants were marked as sent from Edmondstone, the seat of John Wauchope, Esq.; among which we particularly remarked Sutherlánd*ia* frutéscens and Diósma imbricàta. A collection of the genus *I'*ris in flower, including *I'*ris fúlva, and several of the newest and rarest kinds of peony, particularly *Pæònia* albiflòra, Reevès*ii*, Póttsi*i*, Whitlèy*i*, and Hùme*i*, were from the curious garden of David Falconar, Esq., of Carlowrie; and some uncommon and elegant sorts of flowers were marked as from the garden of the Right Hon. Sir Robert Liston, at Millburn Tower. Fruits were exhibited, but nothing is remarked on them worth quoting. The company which attended the exhibition was, as might be expected, extremely numerous, and of the most genteel description. Upon the whole, the exhibition and promenade went off with much éclat. We know that, on occasions of former exhibitions, the funds of the Horticultural Society suffered considerably. This was to be regretted; but it is pleasant to learn that the receipts of last week will reimburse former losses: and we are sure that no one grudged the shilling. (*Edinburgh Advertiser*, July 20. 1832.)

The North British Professional Gardeners' Society. — *August* 8. 1832. Grapes, melons, gooseberries, carnations, hardy annuals, and turnips, were the objects exhibited; and, for each of these, prizes were awarded. A prize was awarded for an essay on the culture of the melon, to Mr. Wm. Cuthbertson, gardener to Wm. Patison, Esq., Williamfield. An extra-prize was awarded to John Smeal, gardener to Sir Robert Liston, Millburn Tower, for a beautiful and very ingenious model of a frame, with peculiar machinery, for growing balsams, &c., invented by him, and presented to the Society; accompanied by a very superior balsam grown in it, and a description of its various properties. Mr. David Burton, gardener to the Dean of Faculty, Granton, exhibited four very large, beautiful, and distinct varieties of Calliópsis bícolor. (*Scotsman*, Aug. 18. 1832.)

Sept. 12. Flowers and fruits, in abundance and variety, were exhibited; and six pears of the Green Yair variety, from Rose Mount garden, weighed 2 lbs. 4 oz. A prize was awarded, for the best essay on the culture of georginas, to Mr. Dugald M'Ewen, gardener, Beechwood; and, for the second best, to William Patison, jun., Esq., Williamfield. (*Caledonian Mercury*, Sept. 20. 1832.)

ABERDEENSHIRE. — *Horticultural Society. August* 29. 1832. Melons, peaches, nectarines, apricots, grapes. apples, plums, gooseberries, carnations, and georginas, were the objects exhibited. A prize for seedling carnations was awarded to David Gairns, gardener to J. M. Nicholson, Esq., of Glenbervie. A schoolmaster, Mr. Robert Adam, of Nether Banchory, won the prize for the 12 best georginas. Mr. George Cardno, gardener to William Hogarth, Esq., Woodhill, won the prize for the best six seedling georginas. The extra-medal was awarded to Mr. Alexander Diack, nurseryman, Mile End, for a dozen of seedling apples upon a twig that had never been engrafted. (*Aberdeen Journal*, Sept. 5. 1832.)

DUMFRIESSHIRE. — *Dumfries and Galloway Horticultural Society. Sept.*

13. 1832. Peaches, nectarines, grapes, plums, melons, wall pears, wall apples, and standard apples, and other fruits, flowering plants, hardy cut flowers, and vegetables, are the subjects in which prizes were awarded. Two prizes were awarded to cottagers. An extra-prize was awarded to Mr. A. M'Gillivray for a new seedling apple. The show of flowers and fruit was very fine. (*Dumfries Courier*, Sept. 18. 1832.)

FORFARSHIRE. — *Dundee Horticultural Society. Sept.* 14. 1832. Carnations, georginas, peaches, nectarines, plums, grapes, apples, pears, figs, melons, pines, vegetables, and flowers, were the objects exhibited. A splendid variety of georginas exhibited from the nurseries of Messrs. Urquhart and Sons, Scouringburn, and from that of Mr. David Stewart, Lilybank. A singular curiosity was produced from the garden of David Martin, Esq., of Roseangle, viz. a young rose plant bearing a flower bud, the seed of which had only been sown last January. Several plants from New South Wales were exhibited by Dr. Bovier, who has lately returned thence. After the dinner, which followed the show, and at which about 100 gentlemen (including gardeners) dined, among various toasts was one by Mr. David Anderson, " to the health of Mr. David Douglas, a gentleman from this quarter, whose ardent pursuit of botanical science had led him to penetrate into distant regions." (*Dundee Courier*, Sept. 18. 1832.)

PERTHSHIRE. — *Royal Perthshire Horticultural Society. August* 31. 1832. Major Murray Belshes is a warm friend to this Society. In addition to the handsome medal presented to it, he has added a valuable donation of books of reference on horticulture, for the use of the members, and has prevailed on William the Fourth to allow the title of royal to be prefixed to the Society's previous title. On this day the objects to which prizes were awarded were flowers, carnations, hollyhocks, georginas, stocks, hardy herbaceous perennial and annual plants, fruits, gooseberries, melons, apricots, peaches, nectarines, plums, grapes, pine apples, pears, apples, cherries, and figs; vegetables besides. The medal presented by Major Murray Belshes to be awarded this season to the most successful competitor in vegetables, was gained by Mr. Moyes, at Seggieden. The reporter remarks, " We noticed a new vegetable from Scone, the Phytolácca decándra, used in America like asparagus and spinach, and also a plate of what are called Topinambour jaune, or yellow Jerusalem potatoes, from Delvine. (*Perthshire Courier*, Sept. 6. 1832.)

RENFREWSHIRE. — *West Renfrewshire Horticultural Society. July* 4. 1832. Pinks, vegetables, strawberries, and nosegays, and flowering plants, were the principal subjects of exhibition. In addition to the prize articles, a variety of shrubs in flower, and several lots of superb irises, sweet williams, and violets, were exhibited by Messrs. Malcom Service, James Kirkpatrick, Robert Guthrie, and John M'Nab. (*Greenock Advertiser*, July 13. 1832.)

Sept. 12. For seedling georginas three prizes were awarded. Various prizes were allotted to various flowers, fruits, and vegetables. Mr. John Borthwick, nursery and seedsman, Greenock, exhibited a large display of double georginas, many of which were very fine, and greatly admired. The articles produced, both for competition and show, were of the first-rate quality, and reflected great credit on the respective cultivators. This Society has a library. (*Greenock Advertiser*, Sept. 20. 1822.)

SELKIRKSHIRE. — *Melrose, Selkirk, and Galashiels Horticultural Society. August* 1. 1832. Gooseberries, melons, nosegays of annual flowers, nosegay from not fewer than 12 species of perennial herbaceous plants, roses, plums, and apples, were the articles exhibited. All the fruit shown was very superior, and the flowers were tastefully put up, and well selected. The visiters, of whom there were a great many, seemed highly gratified with the exhibition. (*Caledonian Mercury*, August 4. 1832.)

Stirlingshire. — *Stirling Horticultural Society. Sept.* 13. 1832. This was a very rich exhibition, and was numerously visited: it was held under the extensive sheds of the corn-market, the entrance to which, as well as the pillars within, were previously decorated with evergreens and wreaths of flowers. The articles shown were georginas, hollyhocks, carnations, stocks, pentstemons, annuals tender and hardy, calceolarias, grapes, melons, peaches, nectarines, apricots, plums, apples, pears, gourds, and vegetables. Of two prize gourds, one weighed 58 lbs., the other 55 lbs. A drumhead and red cabbage weighed together 84 lbs. A medal offered for a pine-apple was won by Mr. James Smith, at Callendar Park. Two new varieties of grape were shown from Tullyallan Castle. Tripoli onions, 12 inches in circumference, from Archdeck House. From Daniel Ferguson, apprentice gardener at Blairdrummond, was shown, a model of a moss house, about three feet high: this specimen of rural architecture excited general approbation, and reflects no small credit on the taste and ingenuity of the juvenile constructor. (*Stirling Advertiser*, Sept. 21. 1832.)

Falkirk Horticultural Society. August 17. 1832. The show held at this date appears to have been this Society's first, and it was an auspicious one. There was a gratifying display of tender exotic plants, and of fruits, vegetables and flowers. Among the plants were, *Petùnia* phœnícea *D. Don*, *Psídium* Cattley*ànum*, beautiful in its flowers and fruit; and eight hybrid calceolarias, including four new varieties from seeds saved by Mr. D. M'Naughton, gardener to Thomas Hagart, Esq., of Bantaskine. (*Scotsman*, August 29. 1832.)

IRELAND.

County of Antrim. — *Belfast Horticultural Society. Sept.* 11. The exhibitors were numerous, and the competition is stated to have been spirited. Some fine fruit of the grenadilla were exhibited from Mount-stewart, and a new specimen of silver beet from James Goddard, Esq. The spectacle presented by the rooms was imposing in the highest degree; the walls decorated with festoons of laurel; the tables covered with splendid specimens of fruit both native and exotic, or glowing with the various hues of the beautiful georginas; the extremities of the apartment occupied by the bands of Lord Donegall and of the 90th regiment, which alternately played during the entire morning, and every space filled with animated and ever-changing groups, formed altogether a spectacle which would have done credit to the larger means of the metropolitan societies. (*Belfast News Letter*, Sept. 14. 1832.)

Art. IX. *Obituary.*

Died, at Biel, in Haddingtonshire, Feb. 12. 1833, *Mr. Robert Blackie*, gardener, in the 65th year of his age, and the 45th year of his service in that situation; highly respected, and much regretted. Mr. Blackie was a most excellent man, a very superior gardener, and a sincere friend to every lover of his art. Those gardeners who have visited the beautiful grounds under his charge at Biel will not soon forget his hospitality and attention. Mr. Blackie kept these grounds in the first-rate style; the wall trees, along the architectural terraces, and in the kitchen-garden, are perfect models of training, and remain to attest his industry, skill, and taste. — *D. F. March* 20. 1833.

Died, on March 12. 1833, aged 71 years, *Mr. Stephen Allen*, market-gardener, Bramford, Suffolk; father of the present Mr. William Ely Allen, gardener to the Rev. M. G. Edgar, Red House, near Ipswich. (*Suffolk Chronicle*, March 16. 1833.)

THE

GARDENER'S MAGAZINE,

JUNE, 1833.

ORIGINAL COMMUNICATIONS.

Art. I. *Notes and Reflections made during a Tour through Part of France and Germany, in the Autumn of the Year* 1828. By the Conductor.

(*Continued from* p. 159.)

We shall give our remarks on the gardens which we saw in Germany, in 1828, in three separate articles, viz., on those of Baden, Bavaria, and Wirtemberg.

The gardens at Schwezingen have been already described in the *Encyc. of Gardening*, and we shall only add what occurred to us when we walked over them in November, 1828. The surface is perfectly flat, and the soil a light sand. When in high order, in the summer season, and filled with company, these grounds may, no doubt, produce considerable splendour of effect; but it must be confessed that they look very much better upon paper than they do in reality. Some of the ornamental buildings are substantial and picturesque; the one that pleased us most was the artificial ruins of a Roman aqueduct. (*fig.* 70.) The ruins of the temple of Mercury (*fig.* 71.) are also very well managed. So completely are these gardens open to the public, that travellers, desirous of seeing them, drive, without asking leave, through the lodges, and under an archway in the château, and set down at once in the centre of the garden, where the guide quickly makes his appearance, and shows and explains every part in detail. It is clear that a great part of the enjoyment of the proprietor must consist in seeing the pleasure which his garden gives to

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strangers. In the spacious orangery here, there are 465 large orange trees, between 200 and 300 years old; myrtles having trunks 6 in. in diameter, pomegranates, sweet bays, common laurels, laurustinus, and arbutus, trained like orange trees. In the arboretum, which contains a considerable number of species, each genus forms an irregular group on turf, and each species is named. In the pits belonging to this garden, thousands of China roses are struck from cuttings annually, and given away to whoever promises to take care of them. In consequence of this, the China rose, as well as other

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ornamental plants, may be seen in almost every cottage garden in Baden. There is a very large collection of green-house plants at Schwezingen, including 140 species of *Erica*. Most of the hot-houses are constructed with opaque roofs, or with span roofs, having the northern half opaque; but there are one or two newer ones with sloping glass, in the English manner. Pine-apples are grown, but not with much success. There is a good kitchen-garden; but, as the grand duke resides here only during summer, winter forcing is not carried on. This garden contains some handsome standard pear trees, trained in the pyramidal manner; but we are informed that they produce a great deal of wood, and very little fruit. These grounds, taking them altogether, are of that kind of which a very accurate idea may be formed from the ground plan and description; because they are perfectly flat, without exterior prospect, and are every where the work of art. We were neither surprised nor disappointed, but walked through them with a feeling of having been there before. This must be always more or less the case with gardens or parks, on flat surfaces, of which correct plans and views have been published. A great defect in this garden is the want of evergreens.

The Park and Gardens at Carlsruhe are, like those of Schwezingen, situated on a level surface; and, like them, may be perfectly comprehended from the published plans and views. The ground plan of the park we have given in the *Encyc. of Gardening*. It consists of a natural forest of oaks and pines, pierced with thirty-two avenues, all radiating from the central tower of the château or palace. The palace (*fig.* 72.) is a heavy hospital-like building, dull and dreary without, and ill-furnished and neglected within. It is however noticed by Sulzer (*Théorie des Beaux Arts*, &c.), and by Hirschfeld, as one of the finest in Germany; and as remarkable, in that country, for having the wings at an oblique angle with the main body of the building. Behind, exactly in the centre of a circle, the circumference of which forms the promenade, is a tower, which commands a bird's eye view of the whole park, pleasure and kitchen gardens, the town and church (the former greatly enlarged since these grounds were laid out), and of the surrounding country, far into France on one side, and to the mountains of the Black Forest on the other. The park and gardens, together with the palace, were laid out by Berceau, a French architect, in 1715. In the parterres were curious patterns strewed with different-coloured sands, broken glass, porcelain, shells, &c.; the main walks were bordered with box, and yew and hornbeam hedges.

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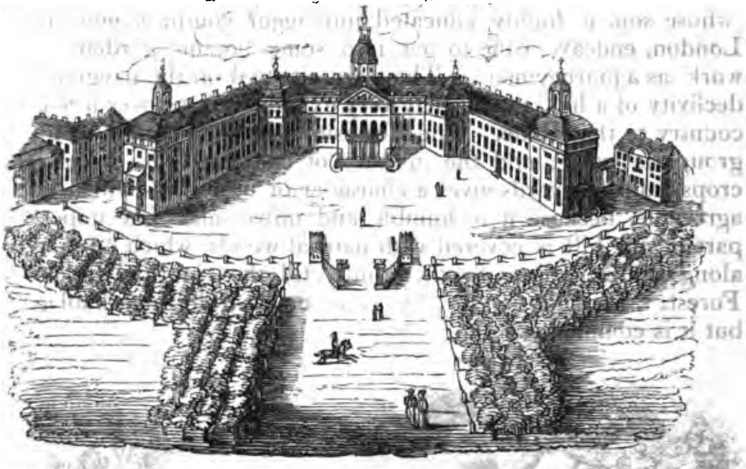

These have been since destroyed, and an open lawn, varied by groups in the natural manner, forms now the main feature from the garden front of the palace. The natural forest scenery is increased in interest by the introduction of exotics, and especially evergreens, along the margins of the alleys and walks. Here the hemlock spruce, Norway spruce, silver fir, Weymouth pine, and arbor vitæ have an admirable effect. Except in front of the palace, there are scarcely any glades of turf; and there being, in consequence, very little mowing, and no clipping of hedges, the pleasure-ground part of Carlsruhe garden is kept up at very little expense. Exclusively of the gardens, there is a park for deer of 400 acres.

All the Gardens and Park Scenery at Carlsruhe are at all times open to the public; and they are rendered the more agreeable, during the summer season, by a band of music which perambulates the ground, and is heard, at short intervals, from morning till night. The gardener who showed us through the grounds in 1828, M. Napoléon Vernier, a Frenchman, a poet, and an enthusiast, informed us that it was delightful to work in them, because the nightingale sang from the evening till the morning; the military band began to practise before breakfast; the rehearsal at the opera house, which is close to the garden, succeeded; and this was followed by the ambulating band in the woods, which continued to play during the remainder of the day.

The Villa and Gardens of Watthalden, near Ettlingen, contain about sixty acres, and were laid out, in the English manner, about 1820, by the late M. Hartweg of Carlsruhe (whose son, a highly educated intelligent youth, is now in London, endeavouring to get into some botanic garden, to work as a journeyman). They are situated on the irregular declivity of a hill, and display very extensive views over a flat country to the Rhine. The disposition of the plantations in groups is good; and the mixture of cultivated spots, corn crops, and vineyards gives a character of usefulness which is agreeable, because it is humble and universal. The upper part of the hill is covered with natural woods, which stretch along the summits of other hills, till they join the Black Forest. The house (*fig.* 73.) is in no respect remarkable, but it is commodious.

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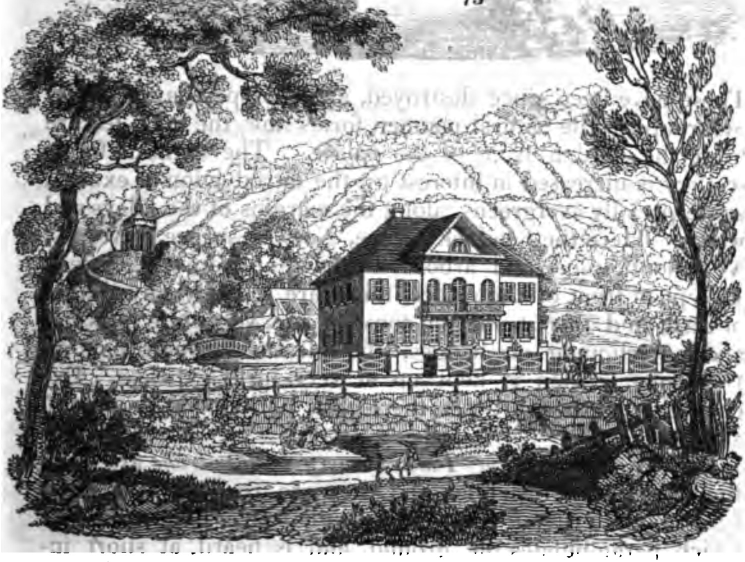
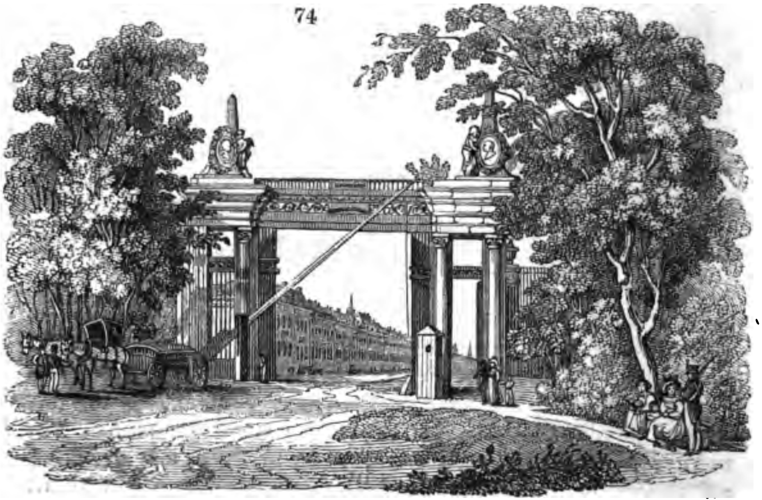


This garden is open to the public under the following conditions, which are printed in large characters, and placarded on a board at the entrance gate: — "Whenever the gates are opened, every one that chooses may enter in, on the following conditions: 1st, not straying out of the paths; 2d, neither gathering leaves, flowers, seeds, or fruits, nor breaking off shoots of trees; 3d, not letting children go without attendants; 4th, not bringing in dogs; 5th, neither writing on statues, walls, or other objects, nor cutting letters in the bark of trees; and 6th, not smoking." The proprietor of this villa, in 1828, was Bersted, the prime minister of the Grand Duke of Baden.

Public Gardens at Carlsruhe. — Several of the streets and squares are planted with rows of trees. In one of them is a fine avenue of *Plátanus*; in another, one of *Catálpa;* several of *Acàcia*; and the trees in front of the barracks are *Æ′sculus* cárnea and rubicúnda. In the open space in front of the palace are triple and quadruple lines of trees, of a variety of sorts; and among these are placed, during the summer season, some hundreds of large orange trees in tubs, covered with blossoms and fruits. The fragrance thus diffused through the town in the beginning of summer, with the music of the birds in the surrounding woods, is said to be delightful, and altogether unequalled in Germany. All the public have the enjoyment, not only of these orange groves, and of the public English garden, but of the park and gardens of the grand duke. Indeed, a prince in Germany enjoys nothing in the open air that is not partaken by all his people; and from this circumstance we in part account for the continued existence, at so advanced a period of society, of so many petty princes, each with immense palaces and extensive gardens. The people are highly taxed to keep up these gardens; but they have almost as much enjoyment of them as if they were their own. One of the finest circumstances in Carlsruhe is, that in two directions the Forest of Hartwald comes up to the gates of the city. These gates are very handsome; one of them, the Durlacher Thor (*fig.* 74.), is by the architect Müller; and the



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other, the Ettlinger Thor (*fig.* 75), is by the celebrated Weinbrenner, who may be designated the Nicholson of Germany.

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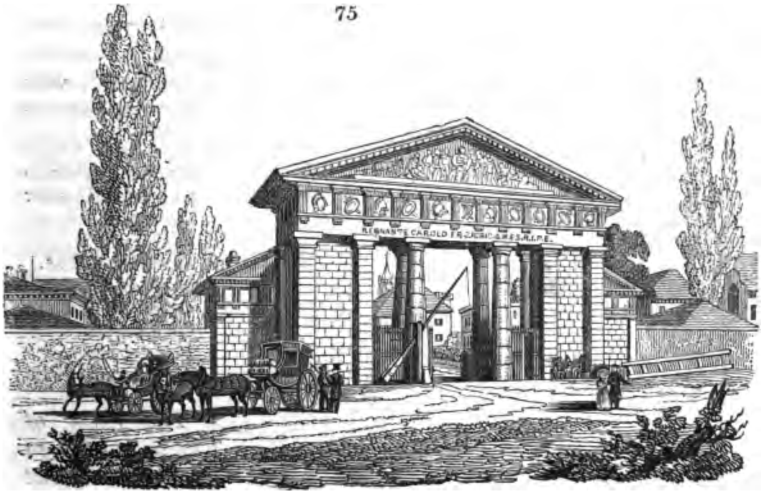

The public English Garden at Carlsruhe contains about sixty acres of a perfectly flat surface, and a piece of water. It is surrounded and crossed in all directions by winding roads, which give it that degree of sameness, as a natural garden, which the Bois de Boulogne, near Paris, has as an artificial one. The conspicuous defect in the plantations at Carlsruhe is the want of evergreens. This want, however, does not result from any ignorance, on the part of the planters of trees, of the different species of evergreens that are to be purchased in European nurseries, but from the great severity of the winters, which destroys, if not every year, at least every three or four years, when a winter is unusually severe, many of the species.

The Garden of the Margravine Amelia (*fig.* 76.) is situated in the suburbs of Carlsruhe. It lies on both sides of a street. It contains about a dozen acres, laid out in 1809, in the natural style, by Hartweg. There are some handsome garden buildings, and some artificial inequalities of surface, very well managed. An archway under the public road connects the one garden with the other. The road is concealed from the house and the grounds by raised mounds, sloping gently backwards from the road; and the carriages and horsemen passing are pointed to as apparently in the garden, seeming to be considered as objects of interest rather than of dislike.

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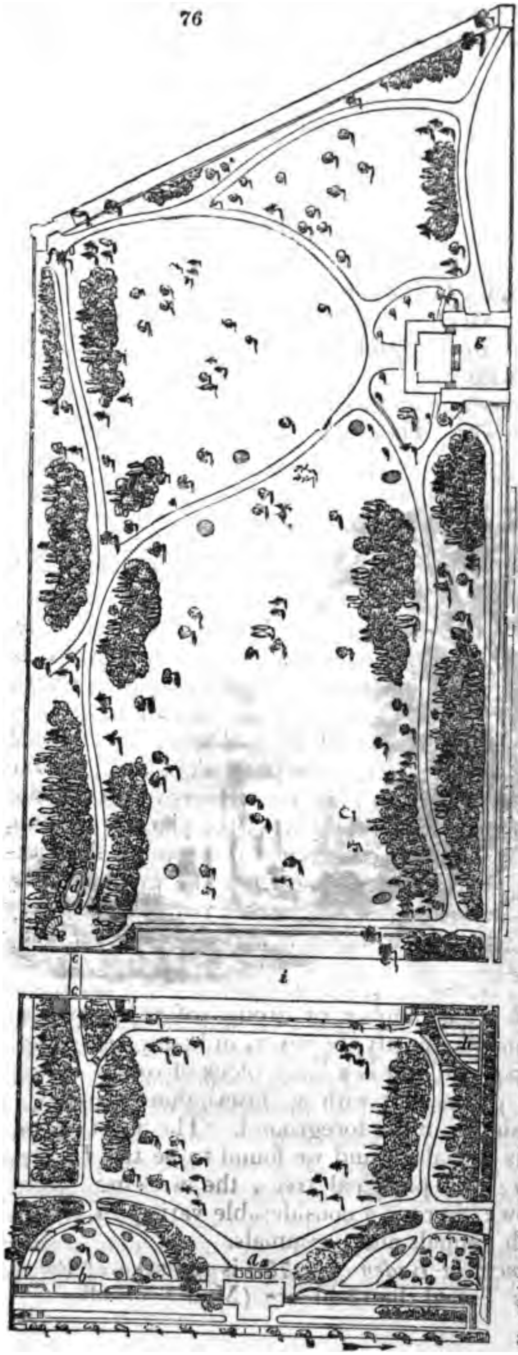

This, indeed, is generally the case in Germany. The following are details: —

a, Villa.
b, Orangery with flower-garden in front.
c, Rockwork which forms the entrance to a tunnel under the road.
d, Water.
e, Place for refuse.
f, Summer house.
g, Villa and offices for a friend.
h, Salad-garden.
i, Public road.

The Villa of Christina, Queen of Sweden, at Baden, is one of the handsomest in the duchy, as far as respects the grounds. The surface is the irregular side of a hill, beautifully varied in itself, and containing finely diversified and picturesque views of the vale of Baden, and the finely wooded hills which form its boundary. The grounds were laid out, in 1821, from a design of M. Hartweg's, by M. Arnold, who was gardener there, when we visited it, in 1828. The trees and shrubs are planted in masses, each containing only one kind, in Sckell's manner; and a most judicious use is made of spruce firs, bird-cherries, *Hippóphae rhamnöìdes*, Amórpha fruticòsa, yellow-barked ash, bladder-nut, acacia, golden willow, fly honeysuckle, red dogwood, privet, lilac, *Spirae*`a, &c., all of which present irregular masses of distinct colours from their bark, even in the winter season. The only want here, like every where else in Germany, is of evergreens. The walks are laid with good gravel of a grey colour, from a stream which passes through the grounds; and (what we found rare in Germany in 1828) they are filled to the brim. The great defect of walks in Germany is the same as that which is so common in Britain, viz., that they are sunk into the ground, instead of seeming to be formed on a level with it.

The principal Cemetery at Carlsruhe (*fig.* 77.) is at a short distance from the town. There are some straight and winding walks through it, a number of groups of trees, and a great many monuments, mostly, however, in bad taste. The monument of the poet Stilling is a large block of rough stone, cracked in several places, but with an inscription across the principal rent, as shown in the foreground. The most common shrub in this burial-ground we found to be the *Hypéricum Kalmiànum*; the principal trees, the weeping birch and weeping willow: there is a considerable variety of herbaceous plants, both annuals and perennials.

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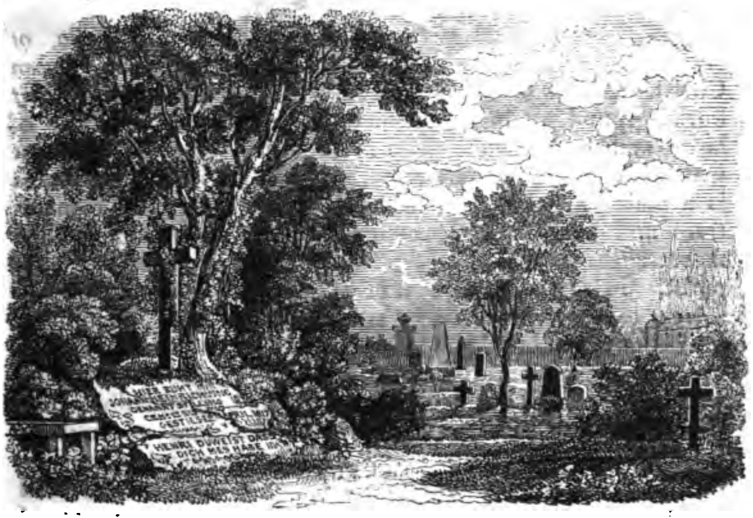

The Burial-Ground at Baden (*fig.* 78.) is remarkable for a piece of rockwork called the Oehlberg (Mount of Olives).

On this are three clothed figures, larger than life, representing three of the disciples worshipping a figure of Jesus

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Christ, which is placed on the summit of the rock. In this burial-ground, as in most others in Catholic countries, is a large and conspicuous crucifix in stone, the sculpture of which is considered to be remarkably well executed. There is a plain chapel for the usual purposes, and a number of trees and bushes are sprinkled among the tombs; but no flowers, the situation being low, and the soil clayey and moist. Here the children are buried in a place by themselves, to economise space, as at Kinzigthal. Their little graves are distinguished by crosses and crowns of white satin, ornamented with everlastings of different colours, and with artificial roses, wallflowers, &c., made of paper.

The Botanic Garden at Carlsruhe has been noticed at length in our third volume (p. 205.), when giving a review of M. Hartweg's Catalogue. This excellent man died in 1830, and the garden is now under the management of M. Zeiher. We visited the Carlsruhe garden in November, 1828, and found it exceedingly well stocked and well kept. Among the fine specimens which it contained were, Wistàr*ia* Consequà*na*, covering the end of a house, and ripening annually a great number of seeds; Andrómed*a* arbórea, twelve feet high, also ripening seeds; Magnòl*ia* macrophýlla, ten feet high, flowering freely. In the stove, Chamæ'rops hùmilis, with fruit, from which, as at Berlin, young plants had been raised; Curtís*ia fa*gínea, very large; Passiflòra *m*alifórmis, ripening abundance of fruit every year;

Vallisnèria spirális; *Ph*órmium tènax, which has ripened seed; and *Técoma* radìcans, which has attained a large size, and is probably as hardy as the native shrubs; *Sophòra* japónica, very large; *T*ámarix gállica, twelve feet high; and Salisbùr*ia*, male and female. *R*hododéndron pónticum is here protected during winter with fern; while *R.* máximum requires no protection. All the American plants in this garden, and also in the pleasure-ground, are grown in rotten wood and leaves. There is a very large orangery, which was formerly a theatre. The *S*carabæ̀us nasicórnis is hatched from eggs inserted in the bark beds; and the perfect insect flies about in the open air; and, while it excites attention by its singular form, does harm to nothing. But the greatest curiosity in this garden is a weeping willow, planted in 1787, which was nearly thrown down by a storm in 1816. One branch was cut off, and an oaken prop was put under the other. (*fig.* 79. *a.*) The willow sent down a root under the decayed bark of this oak prop, which, in 1829, being increased to about the thickness of a man's arm (*b*), burst from the bark; and it is supposed that, in a few years, it will render the oaken prop superfluous. In a building in this garden is a very complete collection of seeds, of sections of wood, and a herbarium. The different seeds

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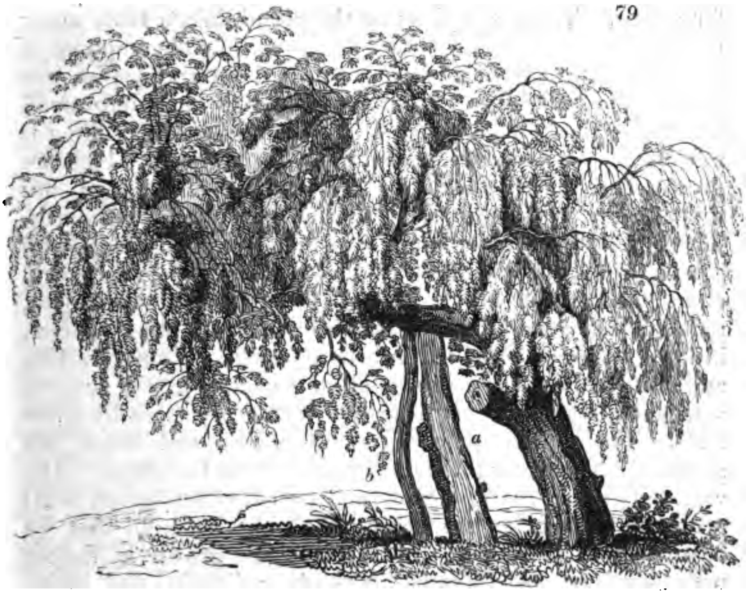

are enclosed in broad flat glass phials, named, and placed on narrow shelves, in the order of the Linnæan system. There is a separate set of specimens of culinary seeds, named, and covered with a glass case; and also a set of forest-tree seeds. The different sorts of kidneybeans are placed on a board divided into small squares, like a draught-board.

In Baden horticulture is far advanced. The kitchen-garden of the palace at Carlsruhe contains five or six acres, and appeared to us, in November, 1822, to be well managed. The pines are grown in pits in the summer time, and removed to shelves, in houses with opaque roofs and nearly perpendicular front glass, in the winter time. On the 28th of November the pines were still chiefly in the pits, and a great many had ripe fruit. They are generally taken in on the 1st of December, and taken out again on the 1st of March. About 300 ripe pines are used every year for the purpose of making wine, which is found to be of an extraordinarily good quality: and four hundred are annually cut for eating. There are pines on the grand duke's table every week in the year. The plants are grown in soil composed of two parts of mould formed from rotten dung and leaves, one part and a half of turf from a meadow, broken into small pieces, but not sifted, and half a part of sand. Fruiting is not effected in a shorter period than three years. Figs are grown here under glass, for the purpose of forcing; but they, and also peaches, bear in the open air as standards. There is a large winter house, in which we found large knoll celery, kohl-rabi, cauliflower, Italian broccoli; red, green, chard, and white beet; large black radishes, scorzonera, parsley, leeks, endive, lettuce, lamb lettuce, and other articles, in large quantities, planted in beds of earth. Young carrots and young turnips are grown all the winter, in pits covered with glass, and protected from the frost every night by straw mats. These articles, with young onions and leeks, are gathered almost every day during the winter for soups. The varieties of kohl-rabi, borecole, and runkel rüben (green beet) grown in this garden are among the most beautiful that we have seen in Germany. Mushrooms are grown in frames with boards instead of sashes, with dung linings, and under the stages of the pine-stoves.

The Kitchen-Garden of the old Castle of Ettlingen is worthy of notice. It contains eight or ten acres, surrounded and subdivided by walls of stone about twelve feet high, with rafters laid under the coping six feet apart, and projecting on each side about two feet. These projections are for the purpose of retaining rolls of strong matting, which were formerly let down at night, and during severe weather, to protect the blossoms in spring. The walls, like almost all garden walls in Germany, are covered with wooden trellis-work. The trees trained are partly peaches and apricots, but chiefly the reinette de Canada apple. Trees of this, as well as of other varieties of apples, grow perfectly well in the open air as standards; but the fruit is found to be much larger when the tree is trained against a wall. In the borders and quarters of the garden are pears *en pyramide*, and apples *en tonnoir*. The most common apple cultivated in this garden is the Rambourg, a large variety of Calville, known, when shaken, by the rattling of its seeds in their cells. This garden belongs to a ruined château, part of which is said to have been built by the Romans 100 years before Christ. There are about thirty such châteaux, with their gardens in ruins, all belonging to the grand duke, in different parts of the grand duchy of Baden, and all open to the public, who, in fact, use them as their own; a poor consolation for being heavily taxed to keep them up.

The celebrated Black Forest, in the duchy of Baden, though once covered with wood, is now, for the greater part, bare. Two districts of forest which still remain consist, the one chiefly of silver and spruce firs and pines, and the other of oaks; some of the latter being of great size and age. (Vol. IV., p. 492.) A plantation of *P*inus rùbra was made in the park at Carlsruhe: the trees were, in 1828, thirty years old, and forty feet high; but whether their timber is superior to that of *P*ìnus sylvéstris remains to be proved. The *Quércus* pedunculàta and sessiliflòra are here believed to be varieties of the same species, *Q*uércus *R*òbur. *Quércus* pedunculàta is said to be more abundant on moist ground; for instance, on the borders of the Rhine. In the woods of Carlsruhe, which form part of the forest of Hartwald, both sorts produce equally tall, straight, sound, and durable timber. The oak grows at Carlsruhe with very great luxuriance; and it is not uncommon to find leaves from twelve to fourteen inches long, and from six to eight inches broad. A superior variety of the *P*inus sylvéstris is grown on the Rhine, about Rastadt, on the German side, and near Hagenau, on that of France. Seeds are sent to various parts of Europe from seedsmen in Rastadt and Hagenau.

(*To be continued.*)

Art. II. *Horticultural Jottanda of a recent Continental Tour.* By Robert Mallet, Esq.

(*Continued from* p. 29.)

In the enlivening sunshine of the morning, fresh from the recent rain, we mounted our mules at the door of the little inn of Martigny, prepared to pass through the Tête Noir into Chamouni, with our good-humoured muleteer, Giuseppe, as guide. We wound slowly along beside the Drance, and passed one of those singular specimens of mechanical simplicity, a Swiss saw mill. The fall is so rapid in Alpine torrents, that all the preparation necessary for a saw mill is to choose a spot where the torrent curves, or has some natural obstruction to its direct course: here a wooden shoot is inserted, and conveyed a few yards at a rapid inclination to the water-wheel, generally about 5 ft. diameter, with short paddles; against which the water, rushing with immense velocity through the shoot, strikes, and turns it with such speed that the crank to which the saws are attached, and on the same axis, makes about sixty revolutions per minute. The timber is driven on by hand. The whole machine is often in the open air, sometimes under a shingle roof.

A little beyond the saw mill the road rises over an immense slope of sandy debris, beneath which an iron foundery lies entombed, from the inundation of 1818. We now turned aside, and commenced a sharp ascent along the edge of a wooded dell, in the bottom of which murmured a mountain brook, on its way to join the Drance: it soon was far below us; and under the shade of noble chestnuts we continued to ascend, through delicious pasture, with cattle quietly feeding among the trees, and here and there a châlet [mountain hut] under " the shadow of a great rock," for about two miles. At one place the ground scarped off precipitately on the left, exposing an extended tract of loose stones and brambles, thickly covered with the *Cúscuta* europæ'a, its beautiful scarlet tendrils glittering in the sun, and the huge grasshoppers revelling in its mimic labyrinths; while innumerable butterflies, some azure, some yellow, fluttered above it. A waft of cool refreshing air sometimes indicated the elevation we had attained; and presently we emerged from the chestnut forestry into open mountain pasture, bare and short, but embroidered with a thousand flowers; and, higher still, thick dark pine forests, and far behind us two or three snowy peaks, rose high and alone. We had now attained nearly the highest point of our path, and soon began to descend towards the ravine of the Tête Noir. At first this tremendous gorge is wide and open, but enclosed with lofty mural precipices; and along its bottom a torrent brawls, swelling its waters at every leap in its progress. A few solitary châlets are scattered under massive rocks, that defend them from the avalanches in winter.

Proceeding along the side of the torrent, for a considerable distance, by a nearly level path, after a steep and long descent, and having crossed a rude wooden bridge, the Tête Noir itself, the stupendous precipice from which the pass takes its name, at once opposes itself to view: a mighty mass of solid unbroken rock, it stands, projecting into the valley, in sheer descent above six hundred feet. I sat down on the planks of the wooden bridge, to sketch its noble outline, and was soon surrounded by numbers of huge ants, which came out of, and retreated into, innumerable small holes in the pine timber of the bridge. These ants infest dead pine timber in the south of Europe, and are nearly as great a destruction to it as the lion ant of tropical climates is to every other kind of wood. It is, I believe, the *Formìca herculànea*: its colour is a very dark chestnut, sometimes nearly black. The male is nearly seven eighths of an inch in length, the female larger, and does not sting when about the person, as our ants do: it appears to feed solely on the dead timber of pine trees, and seems less inclined to attack timber under cover than when exposed to the sun and air. Like our own ants, it has an acid taste, owing to its containing formic acid. The nests of this species of ant are composed of dry leaves, chiefly those of the pines, heaped together to about 15 inches in height, and in the centre is contained the nursery of young ones.

The valley narrows rapidly after passing the Tête Noir; and its whole breadth is covered with a gloomy pine forest, through which the path, scarcely scalable by mules, winds, sometimes ascending, sometimes with a steep descent, now high above the roaring torrent, by this time swelled and lashed into wave and spray; now close to its rolling waters. At one point the scene was peculiarly impressive. The path led over an enormous mass of granite covered all over with lichens: on one side, the pines, set thick and dark, appeared to grow out from between the huge rounded granite that sloped rapidly upwards, until their termination was lost in the forestry; every inch of space between the trees was covered, to the depth of some inches, with the most luxuriant coating the eye could repose upon of the lichens ventòsus and atroflàvus, &c., filling up the yawning crevices between the granite boulders, and making the whole a nodular, verdant, velvety surface. At the other side, the rock overhung the torrent, here rolling over three successive cataracts, at the depth of at least two hundred feet below us; and, on the opposite side, the broken precipice rose until its top was hid by white vapoury clouds that flitted past its face, which nearly opposite us showed the track of an avalanche, — pine trunks crushed, uprooted, broken, and hurried down in every possible direction; every vestige of vegetation torn away, and the bowels of the mountain bared: below, the chaos, the "*strages*" (for I know no English word that expresses it), half blocked up the narrow pass against and through which the torrent fearfully urged its impetuous course.

To descend suddenly from great to small: the extreme loveliness of the mossy carpet, and the air of gardenesque it had, brought to my mind how little care our framers of rockwork take to cherish those beautiful revellers in shade and moisture, the lichens: no plants are so suitable for rockwork, none look so well; because none adapt themselves to and preserve the contour of the stones so well, and none, when once established, need so little care. I have found that each plant of the common *L*ichen ventòsus, when established, will increase at least four inches in diameter every winter, and that the best mode of getting them established is to select plants from flat pieces of rock, with some of their natural mould adhering; to plaster the stone on which the lichen is to be planted, and likewise the bottom of the plant, with a puddle of peat and clay; and to press the plant firmly to the stone. The operation should be performed early in the autumn, that they may be established before the drought of the succeeding summer. As I have begun I will make a little episode upon rockworks; a branch of garden craft well worth attention, and very often botched.

Rockworks ought to imitate some natural arrangement of rocks, with just so much of symmetry and artificial work about them as will give a garden effect. Now, they may be either on broken and hilly ground; in which case much artificial arrangement will generally be injurious, if not impossible; or on a level surface, and devoid of rocks naturally. Rocks are, I think, only found in two forms in level ground, namely, as strata *cropping out*, and as boulder stones, and to one of these two arrangements every artificial rockwork should tend. Where the rockwork is to be constructed of stratified stones, as calp, clay slate, limestone, &c., the former arrangement will be the best; and it offers some advantages over the other; for the artificial strata may be made to dip to the south, and broken into fissures, for plants or shrubs, according to the magnitude of the whole, while the broken and irregular terminations of the strata afford fine nooks and shelves for plants, and moist shady caves for Jungermánn*iæ*, Marchánt*iæ*, &c. The terminal line of the strata may be a curve, so as to present various aspects, and the whole *crop*, to use the geological term, might be hollow, for fungi, &c. Where, however, large boulder stones can be procured, a more intricate and interesting group may be produced, not so good for choice plants, but more picturesque: here large shrubs, or even trees, American plants, and aquatics, may be well introduced.

Some gardeners seem to imagine that the style of rockwork should accord with that of the garden in which it is placed; that is, that a Chinese garden should have Chinese rocks in it, or a rockwork composed of every possible monstrosity arranged as uncouthly as possible; and so of other styles. Nothing can be more mistaken than this: it is the scene should suit the rockwork, which should be artificial chiefly in the suppression of the appearance of art. But be it ever remembered that the common style of making rockworks, piling stones into cones, pyramids, arches, &c., mixing with them fragments of broken statuary or architecture, sea shells, corals, mirrors, singing-bird cages, water organs, &c., is barbarous and absurd. Bees are a delightful addition to rockwork, placed in a hive made of the hollow stump of a tree planted among the stones: their busy merry hum and incessant toil give life to the rest of the scene.

> "Fervet opus, redolentque thymo fragrantia mella." *

I cannot approve of chained eagles, sea gulls, land tortoises, porcupines, &c., pets not uncommonly found in rockworks. The plants immediately amongst the stones should none of them be very tall or straight growers. Prostrate plants of small growth, are the proper staple. No such plants as *T*ussilàgo, &c., should be introduced but where there is a great deal of room, as it is next to impossible to eradicate runners from rockwork, although they may be choking other plants. The common *L*ysimàchia Nummulària is a beautiful rockwork plant much neglected.

If a little bubbling runnel can be made to meander through a rockwork, it is of infinite use and beauty. In a large rockwork I would place here and there patches of close short greensward between the rocks, in well-chosen, sites, to enable one to enjoy the minuter beauties of creation, stretched *sub dio.* In such a situation, and at the close of some autumnal evening, let any one whose mind is capable of feeling the beauty and the glories of creation lie reclined, "commune with his heart, and be still." Close to his eye he will see numbers of little insects bright and beautiful; most of them, though he be skilled in insect lore, unknown to him; some climbing up the spiry grass, some disporting on the fragrant flowers, perhaps engaged in like labour with the bee, most industrious of God's creatures, flitting from plant to plant, and filling up each interval of labour with its song. Beneath the sward on which he reclines, another class of brilliant-scaled insects stir the dusty particles of earth, others skim upon the clear surface of the brook that babbles at his feet; and, looking into its lucid depths, he beholds another and more wonderful race revelling in enjoyment, from the scaled fish, poised on its tenuous fins, to the minutest discernible particle that motion alone detects to be an animal. He may suppose the wonders of vegetable life around him, also, in their everlasting variety and beauty, from "the cedar that groweth in Lebanon to the hyssop that springeth out of the wall." Farther on, the feathered inhabitants of the brake and wood discourse their vesper song. "Silence is pleased;" Nature herself hath donned her evening veil, perfumed by every odorous tree and flower; an auburn halo gilds the landscape seen far away, laden with golden crops, studded with villages, traversed by flocks and herbs: the sun is set; and all is hushed save the lone nightingale, that "all night long her amorous descant sings;" the stars begin to kindle their appointed fires, and the moon pours her broad flood of silver light upon the silent air. It is night: the watcher rises, with a mind exalted, chastened, and composed. But to return from the scenery of our own fatherland to that of the savage spot whence this digression commenced. After a succession of ascents and descents, over the rugged path, fearful and dangerous in many places (but for the surprising sagacity of the sure-footed mules, which, accustomed to such paths, secure their footing, unguided by the rein, with an unerring certainty, even when passing over polished granite boulders, and in places where a fall would be destruction), the valley widened, the trees became more scarce, and we soon arrived at a little châlet, there we dined upon cheese, strawberries and cream, &c.

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* "With diligence the fragrant work proceeds."
Dryden's trans.

The device for a rustic beehive, figured and described Vol. VIII. p. 665., might perhaps not be unsuitable. — *J. D.*

We had not ridden on above half a mile after dinner, when our guide Giuseppe, who had loitered a little, overtook us, running and out of breath, to say that the douaniers of the king of Sardinia had seized his mule, and a pair of pistols of ours (which he carried for the purpose of awakening the echoes), in consequence of our carrying arms through his majesty's territories without paying duty. We had to ride back, and in about a quarter of an hour overtook Giuseppe's mule, laden with our carpet bags, &c., led by the douanier, but not towards their *caserne;* and we had some difficulty in persuading the fellow to conduct us direct to his commanding officer. We retraced our steps, and soon arrived at a miserable hut, and were introduced to *Monsieur le Capitain*, a filthy, unshaven, unsoldierly-looking villain, that had fully as much the appearance of a robber as of a revenue officer: indeed, I believe, in remote districts, these gentry occasionally practise in both capacities. Our amiable captor spoke something to him in *patois*, and he demanded thirty francs for our carrying arms, &c.: we insisted on seeing the tariff; and, in short, after for a long time refusing to show it, after the most disgraceful attempts at imposition and vexatious delays, we reduced their demand *from thirty francs to two*, and it appeared very questionable whether they had any right to even the latter sum. I am particular in relating this trifling incident, as a general caution against the douaniers of the south of Europe (the Austrian states in particular), whom I have invariably found on the watch for any species of mean exaction and peculation. They will open letters, not a syllable of which they can decipher. They seized a volume of Lord Byron's poetry from a Hanoverian student, that we travelled with in Lombardy, as *an unconstitutional book.* These are things that make us feel the value of our own free institutions.

We shook ourselves clear of these extortioners, and soon passed some very large pines. What a noble tree is a mighty pine! when growing in the situation it is intended for, on the mountain side; based on the solid rock, which its huge roots enfold, and, stretching deep, bind to the parent earth: its enormous trunk, unbent by storm or time, reaches towards heaven, "lythe by degrees and beautifully less;" its dependent limbs, laden with persistent verdure, shake icy winter proudly from their crest. Truly the pine is the mountain forest king, as the oak is that of the plain. Majestic as is a large and matured pine, no tree looks more ungraceful when young, and to my eye none seems so out of place when planted in masses in the plain. The habit of planting pines, to the almost exclusion of hard-wooded trees, has long been matter of complaint in our own country in an economical point of view; but surely as a matter of taste it is equally bad: the form and structure of the pine at once indicate it a mountain plant, and it never harmonises in appearance with the massive forms of the broad-leaved trees of the plain. It is said to be necessarily planted for nursing other trees; but species, I should think, might be found, having all the requisites of nurse plants, as well as little starveling pines; some may be found of far greater rapidity of growth, as the American poplars, where effect is required to be speedily produced.

The day was far spent, and the scattered pines cast their long shadows athwart the valley, and the deep silence of evening was broken only by the hoarse murmurs of the torrent rolling along its centre. We had reascended a considerable space, when, at a sudden turning of the path, with a rapid descent, Chamouni, Mont Blanc, and the lofty Aiguille, revealed themselves at once.

A glorious sunset streamed along the valley, and showed the Anveron, in molten gold, winding through its wooded bottom. On the left Mont Blanc reared "its bald awful summit," tipped with the rosy tint of dying day. Every recess and mountain valley was cast in deep and dusky shade; while the huge glaciers and every salient mass were bathed in auburn light. As we descended slowly, wrapt in ecstasy at the glorious spectacle, the sun sank behind the western termination of the valley, and all within it was veiled in darkness. Still its light illuminated the summits of Mont Blanc, and the Aiguille, that rose close on our left, like some gigantic obelisk, so steep that the very snow cannot rest upon it: rose-colour and green, as if emerald were melting into amethyst, beamed and then faded from them both, and all was dark; but still the wide domains of snow upon Mont Blanc relieved themselves against the purple sky, and one solitary star shone clear and steady just above its ample dome, and lights now here and there began to twinkle through the vale. We mended our pace, and soon arrived at the comfortable inn; the sparkling pine-log fire; supper of chamois, with other appliances: and the joyous anticipation of the morrow, by degrees gave way to fatigue, and we journeyed to the Land of Nod.

R. M.

Dublin, April, 1833.

(*To be continued.*)

Art. III. *On heating by the Circulation of Fluids.*
By Robert Mallet, Esq.

Sir,

It appears strange that any man should have thrown away his money upon a patent for circulating hot oil; after the thing had been so distinctly pointed out by Mr. Tredgold, and published long since in the *Trans. Hort. Soc.*, and in the *Gard. Mag.* Vol. VII. p. 177. Still more unfortunate is it, that, were the patent valid as a patent, the difficulties and danger of bringing it into practice are such as would render it useless. Oil possesses, in common with some other fluids, when hot, such a power of exuding through fissures, or the minutest capillary apertures, that it is found almost impossible, if not wholly so, to keep the joints, &c., of apparatus containing it stanch for any length of time. In addition to this inconvenience, the danger of its inflammation is imminent; for, the moment the heat becomes sufficient to carbonise the oil (and there is no mode of regulating or preventing this), gas begins to be generated, and conflagration is likely to ensue. Of this there was a lamentable instance at a sugar-baker's in London.

The advantage proposed in heating by hot oil instead of water, is, that, oil boiling at a temperature about three times as high as water, three times as much heat will be developed, in the same time, from an equal surface of an oil apparatus, as from that of hot water; therefore, that, to heat a given space by the former mode, only one third the heating surface will be required as by the latter; and that, consequently, the cost of the apparatus will be reduced in about the same ratio: that the apparatus, being smaller, takes up less room, &c.; and that the combustion of the fuel is more perfect, and therefore more economical, at this elevation of temperature than at a lower one. Such, I think, is a fair statement of the advantages proposed by heating with fluids at a temperature above 212° Fahrenheit; for effecting which two other modes have also been proposed, namely, by water heated under pressure in close vessels, and by using saline solutions as the medium of heat.

To the first of these, which is the subject of Mr. Perkins's patent, there are many objections. First, the extreme danger which ever will attend the exposure of metallic vessels to great elastic pressure, however contrived or skilfully arranged and managed. The rapid destruction of those tubes which are placed in contact with the fire; which, namely, the continued failure of the generators, was one of the causes of the ill success of Mr. Perkins's engine. This destruction of tubes any one acquainted with locomotive engines is well aware of. To this is to be added the deposition of sediment in the whole line of the tubes, and the difficulties of originally stanching an extensive range of such apparatus, and afterwards maintaining it so, against the effects of expansion and contraction.

The second mode proposed is by using a solution of lime, or some other saline solution, instead of water. By this no great increase of temperature is obtained, and the corrosion of the apparatus is likely to be very great. It would seem, however, that there are very few cases in which it can be of any real advantage, to heat by a medium circulating at a temperature greater than that of boiling water, notwithstanding the speciousness of the arguments by which the contrary may be urged. But, where any such advantage is apparent, I now propose an arrangement at least free from the objections of the preceding ones, whatever it may have peculiar to itself.

I propose to use, as my medium of circulation, any metallic alloy which will melt at a temperature not greatly exceeding 212° Fahrenheit, for this purpose: that composed of bismuth, tin, and lead will probably be found the most convenient.

Fig. 80. is a section of one of the simplest possible forms of this apparatus. The large tube, shown by strong lines, contains within its whole length another range of small gas tubes, the extremities of which are at *a* and *b*. The tubes are arranged in any of the usual forms to produce circulation, and have at one extreme a hollow cylindrical wrought-iron boiler (*c*) which, together with the interspace between the outside or larger tubes and the inner or gas tubes, are filled with the fusible metallic alloy, poured in hot, through tubes at *d d*, which have a loose plug or piston fitted to each, and capable of being withdrawn.

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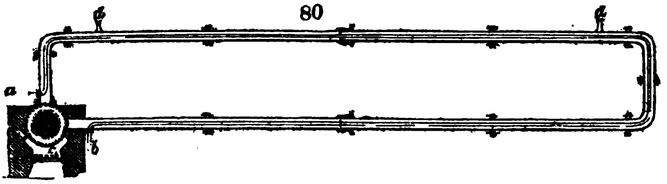
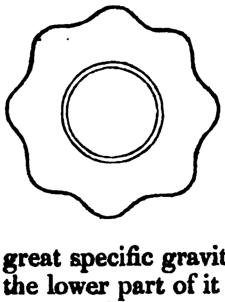


The extremities of the gas tube (*a*, *b*) communicate with a very small steam-boiler. Now, supposing the apparatus all full, but the metal cold and solid in it, and requiring to be heated. By a shovelful of coals steam is got up in the little steam-boiler; by which means, as it passes through the gas tubes, the metallic alloy is fused; during which operation a fire is kindled under the boiler of the apparatus itself, which fuses the metal therein, and as soon as the whole is in fusion, circulation commences throughout the system, the same as in any other fluid; and its temperature may be raised, if necessary, to any thing below that at which the metal becomes volatile, or to a white heat, supposing the apparatus capable of sustaining it.

In this arrangement, then, there is neither pressure, sediment, nor corrosion, but there are three great, but perfectly superable, difficulties to be overcome. First, the very great expansion and contraction of the metallic alloy. To correct this, *glands*, or hollow stuffing-boxes, must unite the outside pipes at various appropriate places; these may either be altogether metallic, or, what I should prefer, packed with amianthus. The gas tubes must likewise be inserted into the outside tubing, through similar stuffing-boxes.

If there be a sufficient number of these glands, no danger from irregular expansion need be apprehended in apparatus of this kind, however large or complicated. The second difficulty is, that these fusible alloys, in common with all crystalline metals, expand at the moment of congelation; and that with such force as to rupture any part of the apparatus incapable of yielding to it. To remedy this, *all* the tubes must be of wrought iron, and not very thick. They should be welded tubes (for the outside), and rolled or drawn into the section shown in *fig.* 81., or some modification of it.

81



Thus the exterior tube will accommodate itself to the metal it contains at the moment of solidification, and at its fusion again will return to its former shape, by the elasticity of the iron. The third difficulty consists in the great statical pressure of the fluid metal, owing to its great specific gravity, on the parts of the apparatus; so that the lower part of it would have to sustain a pressure of fifteen pounds the square inch for about every three feet in height. This would require all the parts so exposed to be strongly put together, and the joints well made.

In point of danger of leakage, the metallic medium possesses an advantage over either oil or water; the law of the capillary attraction of fluid metals being such as disposes them *not* to pass with facility through minute apertures.

With regard to the great statical pressure, it is to be remembered that it *is statical*, and not elastic as in Mr. Perkins's apparatus, and therefore that the worst that can follow from a leak is the metal running out. The boiler for this apparatus may be very small; in fact, little more than a large tube. The joints of the gas tubes might be screwed in the common way, those of the exterior tubes might be flanged, and put together with a cement of red lead ground in drying oil, plaster of Paris, and fine iron borings, which sets very hard when exposed to heat, and withal retains a certain degree of elasticity. But these tubes might be brazed together in such lengths as would supersede all joints but those at the glands.

If this arrangement be not very valuable, from the few occasions for its use, it is, I believe, at least new. The only metal before proposed being mercury, the employment of which is precluded by its expense and volatility.

I am next about to propose an arrangement for the more economical heating of very extensive ranges of hot-houses, &c., by the circulation of hot water, by burning lime in the same apparatus, and applying the heat usually wasted in slacking it to the warming of the water.

Mr. Dalton has shown that the heat of lime in the act of being slacked is equal to 400° Fahrenheit; and I have found that, under proper management, a given quantity of lime, in slacking, will raise nearly five times its weight of water from 60° Fahrenheit to the boiling point. For this purpose I propose applying either of the arrangements, *fig.* 82. or 83., whichever may be found more advantageous; and, possibly, no enlarged experiments being tried, much better arrangements than either may be devised. In *fig.* 82., *a a* are double raised inverted conical vessels, which act alternately as boilers; their inside, or hollow, is filled with the limestone to be burnt, and the fuel. The draught of this kiln (for so the boiler becomes) is downwards through the grates *b b*, and up round the flues *c c c c*, &c.; thus also heating the water in the boilers contained in the annular conical spaces *d d*, and carrying it to circulate through properly arranged tubes in the ordinary way. When a charge of limestone is burnt down, it is to be slacked in the kiln, by opening the cocks *e e*, which permit a flow of water down through the vertical axes, or tubes, *f f*, which are perforated with numerous holes, below the level of the line, and are armed with vanes, or knives, round their circumference; and, being caused slowly to rotate, by the vanes of a smoke-jack, *g*, placed in the flue, or by any other suitable means, mix up the water and the lime, and break the lumps of the latter, thus

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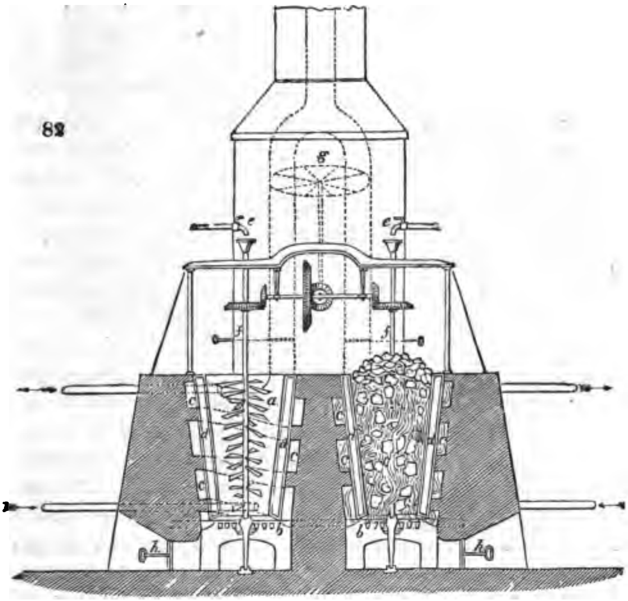

preventing it from clogging, and in swelling (for lime in slacking increases greatly in bulk) bulging out the boilers. When the lime is all slacked, the stoppers *h h* are to be pulled out, and, by touching a trigger, the grates *b b* fall down, and permit the lime to be raked out at the bottom. One of the two kilns must be always burning, and the lime slacking in the other, that the draught of the former may turn the axis for the latter.

Fig. 83. is another arrangement for the same purpose. Here only one of the two boiler-kilns is shown. The boiler is here a hollow cylinder; the lime is thrown in at the end *a*, and raked out at *b*: *c c c* are the tubes for the affusion of water; *d d*, the pipes for the circulation of the hot water. The flame from the fireplace, *e*, passes up through the lime, down on the outside of the boiler, by the flue *f*; and, finally, up the funnel *g*: or the boiler may be used as a common one, independent of the lime, by shutting the damper *h*, and opening two, placed one at each side, as at *i*, by which the flame passes only on the outside of the boiler. This latter arrangement may be adopted also during the time the lime may be slacking in the internal part of the boiler. The lime is sustained from falling down into the flues, by a grate at *k*; *l* is an air tube to burn the smoke of the fuel in the fireplace.

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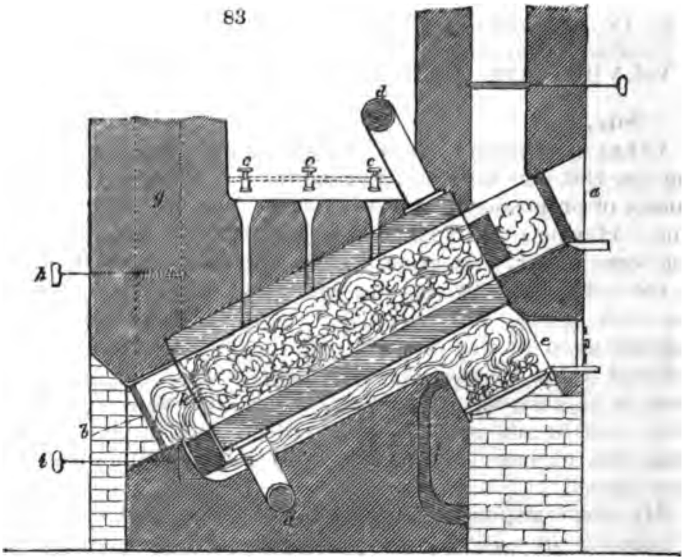

The arguments that may be adduced in favour of this scheme are, that, wherever there is a large range of hot-houses, lime is continually wanting for manure, and that thus the lime burnt would be no drug, and the heat disengaged in slacking it might be economically thus employed: that, in the burning of lime, part of the carbonic acid which is disengaged is converted into carbonic oxide, and thus becomes inflammable, and burns; so that the lime itself, in this case, becomes a valuable fuel: that, this being the case, the lime would be burnt with little or no expense; and, instead of the heating of a large range of houses costing a large annual sum, would produce a saving, by yielding a valuable result. The sole argument against it is complication of apparatus: however, experience would soon simplify that greatly.

There are many useful applications of the circulation of hot water yet to be thought of, and many thought of that have not yet been applied. Why might not the feet of outside passengers on night coaches be kept warm by the waste heat of the lanterns? to take one instance out of many.

Should you approve of it [we do most cordially], I will, at a future time, send you some further thoughts on hot water, &c.

I am, Sir, yours, &c.

94. *Capel Street, Dublin,* ROBERT MALLET.
April 18. 1833.

Art. IV. *Rejoinder to the Answer of the Author of the "Domestic Gardener's Manual," on Questions proposed to that Gentleman in* Vol. VIII. p. 652. By Mr. J. Main.

Sir,

I feel very much obliged by your condescension in answering [p. 186.] so fully and so candidly the queries I took the liberty of proposing to you in a former Number of this Magazine. Having given your answer an attentive perusal, I must beg leave to say, that, from the whole of your arguments, it is to me sufficiently obvious that you have not perceived exactly the drift of my questions; your reply relates only to the augmentation of the *elements of plants*, while my questions referred to the *formation of the organisation.* This being the case, it is necessary to restate my questions somewhat more fully, and to add some brief comment, which, while it will place the former in a proper light, will also show to what they tended.

My first question is simply this, *Can the organic structure of plants be formed by or out of their juices?* I call all juices of a plant the sap, whether in its crudest state, as pure water, or after its assimilation into the consistence of resin, gum, oil, milk, pulp, or jelly. In one or other of these conditions it is found in all plants, and either concreted or fluid, occupying the cellular, vascular, or tubular organs, or exuded therefrom, and appearing on the buds, in the flowers and fruit, or on other parts of the exterior. The sap is therefore an important constituent of the system, and quite distinct, in my opinion, from the organic frame which elaborates and contains it. I ask, then, is the latter formed by any possible aggregation of the former? in other words, are the pellicles of the cells, the sides of the vessels, or tubes of the structure, or the fibrous tissues of the various membranes, generated by associations of the rarer or grosser particles, or globules, of the sap? In your various respectable writings, and in your answer before me, you seem convinced affirmatively. This is your position; which (though supported by many great names) I deem untenable, and which, indeed, called forth the queries I presumed to propose to you.

As proof of your opinion as to the organisable properties of the sap, you refer me to one of our first physiological authorities, and to an ingenious experiment made by that acute observer of nature. But as neither the high respectability of the experimentalist nor the result of the experiment itself can bear upon or alter the simple question proposed by me, I must decline giving any opinion thereon, more especially as the results of such experiments are not always uniform, differing according to the time and manner of performance; indeed, I might add, at the will of the performer.

I have already alluded to the *sap* and *membranous frame* or structure of vegetables; but there is another equally important matter to be adverted to; I mean, the *elements* of vegetables. These, you say, are chiefly the constituents of water, viz. oxygen, hydrogen, and carbon; the chemical essences or bodies of which the vegetable frame is compounded; the pabulum by which it is enlarged, and without constant supplies of which a plant remains stunted, or would in the end inevitably perish. All this I firmly believe, and it is an admission which may appear at first sight to be corroborative of all you have advanced, and contend for, relative to the growth of plants; but I presume to think that a little further consideration and explanation will show, not only that such distinction is just, and therefore necessary, in physiological investigations, but that they, viz. vegetable elements and vegetable organisation, should never be confounded together, so as to attribute to the former the power of generating the latter. Your ideas appear to be, that vegetable food, in conjunction with the vital energies and "chemico-electrical influences" of the earth and atmosphere, goes directly to form new organs. My opinion is, that nutrition received into the system goes only to increase the quantity of the *elements* already existing in the membranous fabric, serving to dilate and expand the same; not by addition of new cells, tubes, or fibres, but simply by enlargement of those already there. You assume that, by certain and peculiar combinations of vegetable elements acted on by "the great natural agents," new organic bodies may be generated. I humbly imagine this to be impossible; because such a phenomenon has never been seen, nor do we ever witness any vegetable body produced, unless it originates from a seed, propago, tuber, or other dissevered member of a plant. The organisation and specific structure are certainly rudimental; these are amplified, as already observed, by the elemental fluids absorbed by the receptive spongioles and pores of the cuticle, but not one additional cell can possibly be formed by any such augmentation of either gaseous or aqueous fluids. Can we suppose, with Buffon, that nature abounds in "*living organic particles;*" and that these, by concurring circumstances, associate by accident, and form vesicles, laminæ, tissues, fibres, and all other organic structure, in the same way as crystals are formed? Such doctrine, I presume, cannot be sound philosophy. If there were not determinate rudimental structure, the combinations of the introsuscepted aliment would be *fortuitously arranged*, and all specific structure would be irregular and confusedly disposed.

These, my humble opinions of vegetable elements, accretion, and developement, will readily account for my second question, relative to the instances of *organic* bodies being formed out of *inorganic* matter, and on which I requested information. On this question you have been pleased to give as an instance the new growth of a potted vine, forced under your own eye. You solicit my attention to the new organisation exhibited in the elongated shoots, and ask whence it came. I feel perfectly confident in stating that the whole was contained in the buds before expansion, and the increase of the elements was derived from the manured earth and water with which the vine was supplied. The chemical elements of carbon, &c., contained in the expansible organisation of the buds were excited into action by heat and light; and, in every moment of the growth, fresh supplies of those elements were received to dilate the pellicle of every cell, elongate every tube, and engross every fibre composing the several membranes of the plant. I could prove by a thousand instances, were it necessary, that vegetable as well as animal organisation has rudimental preexistence. It is a fact admitting not a shadow of doubt; for, if it could be proved that the lowest and most insignificant of vegetables was self-produced, or if even the most *inconsiderable portion* of a vegetable organ could be formed from the mere union of vegetable elements, then, in the same way, we should not only have *adventitious* buds, flowers, and fruit, but adventitious herbs, and shrubs, and trees.

Chemistry can form crystals, marble, and even the hardest of all mineral bodies, out of what was once in a state of fluidity; but can any possible combination of chemical bodies and powers originate the smallest *Fúngus*, or the minutest species of Infusòria? Some natural philosophers labour in vain to account for the *primitive formations* of plants and animals by their principles of science; and so, I dare think, will vegetable physiologists be puzzled, if they deny preexisting organisation. If, therefore, a plant cannot originate itself, nor acquire existence without a rudiment; so neither, it follows as a corollary, can the smallest member or appendage of a vegetable be developed, unless it arise from a preexisting congenerous membrane. (See *Dom. Gard. Man.*, p. 274.)

From these circumstances we arrive at, I think, a just and rational conclusion, viz., that vegetable sap *is not organisable;*

because, in whatever state it is found, either in or out of a plant, it is always homogeneous; for instance, resin, gum, &c. That state of the alburnum called *cambium*, or pulp, *is not sap*, though fully charged with it. This I have endeavoured to prove elsewhere *; but it would take up too much space to discuss it in these pages. I shall only add that I consider it impossible that either bark, wood, buds, leaves, flowers, or fruit can receive form, texture, or ligneous consistence adventitiously, even from the most elaborated and concentrated accumulations of that vegetable product the sap; and this doctrine I must continue to hold, until you or some other philosopher can clearly show that plants have, and may, come *into existence* equivocally. It is not necessary I should notice the other circumstances alluded to in your answer, relative to the secretions of animals, and transmutability of *inorganic* fluids and solids, because they do not bear on my questions, and, moreover, on these points we mostly agree.

But, however you may receive or reject what I have advanced as explanatory of the real bearing of the questions proposed to you, be assured, Sir, that I feel much obliged by the civility which dictated, and the valuable illustrations of the elements of plants contained in, your answer. I regret much my ignorance of chemical science, and consequent incapacity for treating my view of the subject as it might be treated. All I know of that excellent science I have gleaned chiefly from yourself; and it is my sincere opinion that you have rendered essential service to practical gardening, by having united the two studies more intimately in the *Domestic Gardener's Manual*, than had been done by any previous author; and I flatter myself with the hope that, in all your future experiments and observations on vegetable phenomena, you will have an eye to the distinction, which I have so feebly tried to point out, between the enlargement of the vegetable frame, and the augmentation of the elements. It is in your power to do justice to the subject (should you approve the doctrine); and such a disquisition from your pen, appended to future editions of the *Domestic Gardener's Manual*, would be very serviceable to practical men.

With best wishes that you may be long able and inclined to prosecute your studies, in the different branches of science you have chosen to illustrate,

I remain, Sir, yours, &c.

May 4. 1833. J. MAIN.

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* Vegetable Physiology practically applied to the Cultivation of the Garden, the Field, and the Forest; now in the press, in one small volume 8vo. Orr, Paternoster Row.

To the Conductor of the Gardener's Magazine.

Sir,

I dare not directly presume to address my gratuitous respondent, Joseph Hayward, Esq., author of the *Science of Horticulture*, &c. &c., and therefore trust to your kindness to give insertion to a very few words by way of rejoinder to the observations of that gentleman. (p. 192.)

In the first place, I ought to consider it an honour that any question proposed by me should attract the notice of one who has distinguished himself so much by his writings on the science of both farming and gardening. Secondly, my thanks are due for his *merciful* consideration, in refraining to give an answer which *I could "not understand;"* and, moreover, for the very homely instance which he has been pleased to give of the *organisable* properties of my "mother's milk," which, he assumes, gave me, during babyhood, bones, legs, arms, and all other appurtenances to boot. These, however, I humbly imagine, I possessed long before I yet had blest my poor dear mother's sight. No doubt, *that maternal fluid*, gave me what Sir John Falstaff called *thewes;* but I much question (foolishly perhaps) whether, if I had sucked till now, I ever should have had another head or an extra-limb.

Mr. Hayward can hardly be serious in referring me to the *earthy deposit* on the inside of a *tea-kettle;* for surely the most consummate science would fail to prove that to be *organised* matter. But this reference, I am fully persuaded, was only *a slip* of the pen; and therefore, as in candour bound, I willingly exercise that tribute of *compassion* due to any man of science who inadvertently writes what, on reconsideration, he must feel he never could intend. I shall not add a blemish to the Gardener's Magazine by alluding to the style of Mr. Hayward's letter: *that* speaks for itself.

I am, Sir, yours, &c.

May 4. 1833. J. Main.

Art. V. *On the Effects of Terrestrial Radiation on the Processes of Vegetation; and some Account of the Chinese Method of propagating Fruit Trees.* By J. Murray, Esq.

Sir,

Of all the sciences, it will be granted, on every hand, none is more connected with horticulture than that of chemistry. It is indeed its sun and centre; and, without the application of chemical laws and phenomena to horticulture, its principles remain unknown; the pursuit is a species of rude chance game: not to mention the world of life and interest which a correct knowledge of the chemistry of vegetation can impart to the cultivated intellect. The physiology of plants, or the laws and phenomena of vegetation, forms one of the most interesting and beautiful domains of chemical science. In saying thus much, however, I would not be understood as underrating the importance of meteorological phenomena, which rule the atmosphere in its temperature, barometry, and hygrometry. These are essentially connected with the rise, progress, and decay of vegetation, or its full establishment in the attitude of healthy luxuriance. Above all (though a question too lightly esteemed) is the electrical condition of the atmosphere, and the electrical relations of individuals which constitute the living mass of vegetation. It is to be regretted that the practical gardener discards every instrument save the thermometer. Although I am far from denying it a place, and that an important one, in the scale of usefulness, I mean to assert that the hygrometer and aerial electroscope may safely dispute with the thermometer the point of priority. At the present time, however, it would be premature in me to allude to a series of experiments now in progress, and which promise curious and interesting results. I may safely, however, venture to say that the laws and phenomena of radiation, too little attended to in even the science of horticulture, are in many instances the very hinges on which the success of an abundant and mature crop of fruit depends.

In the present communication, with your permission, I shall supply a few remarks connected with the cultivation of the vine in this country (in the open air), as elucidating scientific principles which I am engaged in carrying into effect, as I am anxious to bring the question before your readers as early as possible, to enable them, should they approve of my reasoning and plan of pursuit, to follow out into practice the principles now propounded for their consideration. To this I shall add a few observations on the Chinese method of propagating fruit trees; and I may avail myself of a future opportunity to transmit a model of an improvement I have made in the machine employed to enclose the ball of earth and confine the newly formed roots.

It has been shown that the cooling process of radiation, by which the temperature of the surface of the earth is lowered so considerably, differs materially on the inclination of the hill compared with the bosom of the valley. Mr. Daniell, indeed, states, on one occasion, a difference amounting to 30°: that is to say, the thermometer on the inclined surface maintained a higher temperature by 30° than another placed on the horizontal or level plane of the adjoining valley. This difference is certainly enormous; but it is proved beyond all doubt that a slope, an inclined bank for instance, radiates less by many degrees than the surface which is altogether horizontal. Indeed, I think we may collect abundant proofs of this important fact among the mountains and the valleys of Italy. On the plains of Piedmont, the vines which are suffered to attain a considerable altitude on lofty poles, planted as their support, are detached from these poles towards the approach of winter, and prostrated on the earth, where they are secured from injury by the straw. This treatment protects them from the effects of the intense though short winter which reigns on the plains of Piedmont; for, even at Turin, the water in my room has been congealed into a solid mass of ice throughout its entire extent. The olive succeeds in Tuscany; but the almond, pomegranate, and plants of the *Citrus* family flourish but imperfectly: and yet, on the acclivities of the amphitheatre of the Apennines, which forms a semicircle round the magnificent city of Genoa, you find that the pomegranate, the lemon, and the orange mature their fruit and luxuriate. Even the imperial city is indebted for her palm branches to the palms which succeed in the open air at Nice. Now, the only difference in these circumstances consists in a reduction of the loss sustained by radiation, and the attempered influence of the sea breeze, which more than counterbalance the increase of warmth imparted by the sunbeams to a more southern clime: perhaps even the excellence of Monte Somma wines may have something to do with the acclivity on which the vineyards are planted. To my vision, fruit trees planted on terraces, and rising one above the other, in amphitheatrical form, appear beautiful; but this has become, I suppose, unfashionable, because it happens to be a gem from the antique. Now, restlessness in search of something new, however absurd, is incessant. The ancients appear, in this respect, to have known what they were about; and I must frankly confess that, in my estimation, they acted wisely, and had the better of us, and that we are decidedly in the rear. To this cause I attribute the remarkable fertility of the Land of Judea in former times. Its susceptibility is sufficiently apparent, and there still remain existing vestiges of this mode of cultivating the flanks of the valleys, or the sides of the diversified hills of Palestine, to a considerable altitude. It is still, however, very questionable, whether low walls, constructed of brick, or of stone and mortar, quite vertical, would succeed so well as the surface of a calcareous or sandy soil, at an angle, for example, of 45°. A sandy soil absorbs heat, and continues heated, because sand is an indifferent radiator, and is, moreover, a non-conductor of caloric (heat); so that vines, &c., in contact with such a surface, would be more than compensated for the temperature they would lose through the medium of radiation; which would also be attenuated from the inclination of the plane.

At St. Mary's Isle, the seat of Earl Selkirk, near Kirkcudbright, I remember to have seen a beautiful illustration of my views, in the case of pear trees pinioned to trellis-work on such an inclined surface as I have described; and I have always understood that the crops of fruit which these trees carried were remarkable both for quantity and quality: indeed, it must be apparent, that, under such conditions, spring frosts can have little or no influence; because these frosts are entirely connected with the principles of radiation, and have little or nothing to do with the temperature of the atmospheric medium. If the soil is not of a sandy consistence, in that case I would employ a thin stratum of sand. I have in my little garden just such a surface inclined and sandy, and have planted vines with an intention to train them on the surface, on a framework, something like cucumbers or melons in the hot-bed. The vine I am making my experiments with is called Miller's black grape. I have already had ample proof that the healthy luxuriance of other tender plants does not suffer, and that frost has little or no effect on such an exposure.

For the purpose of maturing the fruit, I shall throw a veil of black gauze over the vines; and this will secure me the effects of a powerful absorption of the calorific rays of the sun's beams. Though the radiation from a black surface is proportional to its absorbent capacity, it will operate during the lengthened day (and at this period of the year the night is reduced to its minimum) in the maturation of the fruit, while the sandy surface is retentive, from its non-conducting character. If bunches of grapes on vines exposed *sub dio*, or reared in the open air, be tied up in white bags, they will scarcely ripen, are small, and want flavour; but if other bunches on the same tree be confined in bags of black crape, the contrast is very striking, in the latter being fully ripe, large, and of a flavour equal to those cultivated on a foreign soil. This fact explains the principle on which I would veil my vines with sable weeds; further explanation would, therefore, be superfluous and unnecessary.

Respecting the Chinese method of propagating fruit trees, it is merely requisite to detach a strip, or narrow riband, of bark from the branch or limb which is to be separated.

The Chinese apply to this a ball of earth mingled with clay, to impart greater consistency to it, and this is covered with moss, and secured by bandages formed of some pliant material: a small pan, containing water, is suspended over it, and serves to keep the ball moist. This method, as successfully pursued in this country, was first pointed out to me by Sir Lauchlan MacLean of Sudbury. The Italians often adopt the plan; and I have seen a large orange tree, 14 feet high, loaded with growing fruit, thus separated from the aged parent stock, and exposed for sale in the market at Naples. I have witnessed the plan in full operation near the royal observatory of that city. One obvious advantage is, that no time is lost in the growth of the tree; nay, the very abstraction of the ring of bark from the branch rather expedites than otherwise the evolution of fruit. The Italians have improved on the rude plan of the Chinese, by enclosing in a tin case the stem of the future independent tree: it is filled with earth, pressed down, and covered with moss, which is preserved moist in the way I have already described. This part of it I have improved, by suspending the tin vessel which contains the water on an adjoining branch above the ball, while a woollen thread, previously moist, forms a line of communication, and affords a constant regular supply, on the principle of the siphon, and the capillary attraction of the fibres of the thread. A lid prevents the loss by evaporation from the surface of the water confined in the vessel.

A linear incision in the bark above a bud, it has been stated, will convert that bud into a branch. Last season I tried several experiments of this kind on a fig, cutting out a narrow strip of bark, over the bud, in the form of an inverted V, and succeeded in producing branches in five out of seven instances. The want of success in these two, I suspect, arose from the imperfect separation of the lips of the bark, and insufficient depth of the incision.

I am, Sir, yours, &c.

Jan. 20. 1833. J. MURRAY.

ART. VI. *On Arboriculture in relation to Geology.*

By CAUSIDICUS.

Sir,

I VENTURE to trouble you with some remarks on the predilection which different trees indicate for different soils, in the hope that they may occasionally furnish hints to planters for their selection of species, and prevent the meagre, starved, and poverty-stricken appearance which is too often manifest, notwithstanding that heavy expenses have been incurred, when the planter has rather considered what trees he should like to see grow around him, than what trees the land is most congenial to [see Vol. VII. p. 373.], or has given a general order to his nurseryman, leaving him to supply whatever is most abundant, or best grown, in his own stock, without giving him the necessary information as to the soil, situation, or climate, in which the plantations are to be made.

The soils to which my observation has been principally directed, because I have been most familiar with them, are the calcareous strata, and particularly the chalk; a stratum which subtends a very considerable proportion of England; extending, with some intermission, from Beer in Dorsetshire to Flamborough Head in Yorkshire. This rock, though sufficiently porous to permit water to percolate through it, so that it is rarely troubled with surface water, yet has, like all other calcareous matter, a very strong attraction for water; and the consequence of these two properties, namely, its attraction for water, and its porous texture, is, that this soil operates as a sponge, suffering the superfluous water to sink down to a lower level, but retaining a quantity of water so closely combined with its own substance, that it will not freely give it out to the heat of the sun, although it long continues to afford a sufficient supply to the fibres of the vegetables which invest it. We accordingly see that the grass and herbage of the chalk downs do not burn up with the summer heat, even under a very high and long-continued temperature: if they appear brown or yellow, the colour is only that of the ripened stalks of the grass; but the leaves are still green, and the corn and pulse crops on the chalk, even in a dry summer, are less deficient in straw than are the same crops on many other soils; and they never, through excess of heat or drought, fail of finding a competent supply of moisture below their roots, to swell the grain with farina of the best quality. This rock is, for the most part, too compact to admit the roots of trees freely to insinuate themselves into its fissures, until it has first been trenched, or otherwise broken up; but, as well the detritus which covers it (and which usually consists of a calcareous loam, varying, at different places in its depth, in the proportions of silex, of vegetable matter, and of argil, which are mixed with it), as also the chalk itself, when trenched, evince an aptitude for the growth of certain plants usually considered as aquatics, which we are surprised to see flourishing so luxuriantly in very elevated situations, and far remote from any visible reservoir of water, either on the surface or beneath it. Thus, the abele, or silver poplar (*Pópulus álba*), the black

Italian poplar (*P.* acladésca), Lombardy poplar (*P.* dìlatàta), the red-twigged osier (*S*àlix rùbra), round-leaved sallow (*S*àlix càprea), the Huntingdon willow (*S*àlix álba ?), and the alder (*A*'lnus glutinòsa), all flourish with surprising success in a trenched chalk soil, though it be almost destitute of any surface covering of vegetable earth, and apparently barren. I regret that I have not made more extensive experiments in the cultivation of other species of aquatic trees on chalk soils; but those which I have mentioned ought to be considered as affording sufficient encouragement to try the *S*àlix Russell*iàna* (Bedford willow), *P*ópulus macrophýlla, or Ontario poplar, and other valuable trees of similar habits. I feel, however, called on to declare, that I am not aware of having observed either of these trees spontaneously produced on the chalk, except the *S*àlix càprea (sallow) and *P*ópulus álba (abele).

The following is a catalogue of certain native British trees and shrubs which I have observed to grow spontaneously and vigorously on the chalk and its detritus: —

A'cer campéstre, common maple; *B*étula álba, common birch; *B*úxus sempervìrens, tree box; *C*lématis Vitálba, traveller's joy; *C*órnus sanguínea, common dogwood; *C*órylus *A*vellàna, common hazel; *C*ratæ'gus *O*xyacántha, whitethorn; *E*uónymus europæ'us, European spindle tree; *F*àgus sylvática, common beech; *F*ráxinus excélsior, common ash; *J*ùglans règia, walnut; *J*uníperus commùnis, common juniper; *L*igústrum vulgàre, privet; *P*ópulus álba, abele tree; *P*ópulus trémula, aspen tree; *P*rùnus spinòsa, blackthorn; *P*ýrus commùnis, wild pear tree; *P*ýrus *M*àlus, common crab tree; *P*ýrus *A*'ria, whitebeam tree; *P*ýrus *S*órbus, true service tree; *Q*uércus *R*òbur, oak; *R*hámnus cathárticus, buckthorn; *R*hámnus Frángula, berry-bearing alder, provincially blackwood; *S*àlix càprea, round-leaved sallow; *S*ambùcus *E*'bulus, dwarf elder [a herbaceous plant]; *S*ambùcus nìgra, common elder; *T*áxus baccàta, common yew; *T*'ilia parvifòlia, red-twigged linden tree; *U*'lmus montàna, wych hazel; *U*'lmus campéstris, English elm; *V*ibúrnum *O*'pulus, Guelder rose, provincially coppice alder; *V*ibúrnum Lantàna, wayfaring tree, provincially whitewood.

There are certain of the upper beds of the chalk, of a fine soft texture, the *creta scriptoria*, into which the roots of the oak so penetrate, as to make that tree flourish in a singular manner, attaining in those situations great height, and having the bark of its young branches shining like silver, of beauty not inferior to that which adorns the silver bark of the oak woods on the schist of Devon; but, generally speaking, the oak on the chalk, though it spontaneously propagates itself, is small and stunted, and is by no means the most splendid sample of the species. The ash, too, although it is spontaneously propagated in great plenty, does not, except in certain soft beds of the chalk, attain great size; and it is extremely subject, on this, as well as on the mountain limestone, and on other calcareous soils, to be affected and destroyed by the canker; which disease often also attacks and destroys some of the young beeches.

With these materials, however, it is very practicable to create stately groves, dense covers, valuable timber, productive coppices, and beautiful and varied scenery.

There are also plants, as well many exotics long established in this country as native species, which are not the spontaneous growth of this stratum, to which, nevertheless, the chalk soil is congenial. Such are: — *A*ˋcer *pla*tanöides, Norway maple; *Æ*´sculus Hippocástanum (provided there be a depth of calcareous loam above the chalk rock); *A*´lnus glutinòsa, common alder; *A*´rbutus *U*´nedo, arbutus; *Aúcuba* japónica, Japanese gold plant; Búddle*a* globòsa, globe-flowered buddlea; *C*árpinus *B*étulus, hornbeam; *C*ístus, numerous, probably all the hardy sorts; *C*olùtea, bladder senna; *C*órnus álba, white-berried cornel; *C*ýtisus *L*abúrnum, laburnum; *C*ýtisus alpìnus, Scotch laburnum; *C*ýtisus nígricans, black-rooted cytisus; *E*uónymus latifòlius, broad-leaved spindle tree; Kér*ria* (*C*órchorus) japónica, Japanese kerria; *L*aúrus nóbilis, common bay tree; *P*hiladélphus coronàrius, mock orange; *P*látanus orientàlis, oriental plane; *P*látanus occidentàlis, occidental plane; *P*ìnus *L*àrix, larch; *P*ìnus *P*ícea, silver fir; *P*ìnus *A*ˋbies, spruce fir; *P*ìnus sylvéstris, Scotch pine; *P*ìnus *S*tròbus, Weymouth pine; *P*ópulus acladésca, black Italian poplar; *P*ópulus dilatàta, Lombardy poplar; *P*rùnus armeniaca, apricot; *P*rùnus insitítia, bullace plum; *P*rùnus doméstica, common plum; *R*hámnus *A*latérnus, alaternus; *R*òsa moschàta, musk-scented rose; *R*ùbus Idæˋus, raspberry; *S*ambùcus racemòsa, red-berried elder; *T*hùja orientàlis, Chinese arbor vitæ; *T*hùja occidentàlis, American arbor vitæ; *T*ília europæˋa, common linden tree; *V*ibúrnum *T*ìnus, laurustinus; and, doubtless, many others, which have not met any observation.

Of the pine tribe, the larch seems to succeed best; next to that the Weymouth pine and the silver fir. On some exposed and barren parts of the chalk, even the hardy Scotch pine can attain no stature, at least if planted without previous trenching; and in all, except the deepest and most fertile of the chalk loams, the spruce fir, though it may appear to flourish for a few years, yet, after a quarter of a century, it becomes stunted and starved; it loses its foliage, and either actually dies, or survives only to perpetuate the melancholy spectacle of a well-intended work injudiciously conducted. The finest planes I ever saw were on the chalk, but situate in a bottom where there was a considerable depth of calcareous loam, mixed with flint gravel, interposed between their roots and the homogeneous rock.

Although it may not strictly come within the scope of my present enquiry, yet it may not be amiss here to mention, for the sake of those who may have occasion to make wilderness walks or ornamented paths through a chalk country, a few of the herbs and flowers which either will spontaneously spring up, or, if once introduced, are so congenial to the soil as to propagate and perpetuate themselves without any further care. Such are: — *A*nemòne Pulsatílla, pasque flower; *A*nemòne nemoròsa, wood windflower; *A*ntirrhìnum màjus, snapdragon; Aquilègia vulgàris, common columbine; Campánula, all the species; *C*ístus, all the hardy species; *C*lématis, all the hardy species; *C*ólchicum autumnàle, meadow saffron; Convallària majàlis, lily of the valley; Convallària multiflòra, Solomon's seal; *F*umària, fumitory; Galánthus nivàlis, snowdrop; *H*edýsarum Onobrýchis, saintfoin; *H*edýsarum coronàrium, French honeysuckle; *L*ílium cándidum, white lily; *L*ílium *Mártagon*, Turks-cap lily; Linària Cymbalària, ivy-leaved flaxwort; *L*ìnum perénne, perennial flax; *N*arcíssus, many species and varieties of; *O'*rchis, many sorts; *P*apàver orientàle, Eastern poppy, and all the poppies; Scabiòsa arvénsis, corn scabious; *T*hýmus *S*erpýllum, wild thyme; *Verónica*, numerous species; *V*ínca màjor and mìnor, greater and smaller periwinkle.

I also think it due to those who are disposed to clothe with wood the usually naked surface of the chalk hills, to point out to them the full indemnity for the expenses of trenching their plantations, which they may derive from the culture of the parsnep, in the first and in other years of their operations, until the growth of their trees prevents its continuance; for I have found that, even upon the most naked and apparently sterile chalk of the upper beds (where only I have tried it), with scarcely any mould over it, yet, if it be deeply trenched, the parsnep, without any manure, attains there, not only a most respectable size, but also an exquisite richness and sweetness, which I never obtained in that best of all roots, whether for the table, the stall, the stable, or the pigsty, upon any other soil. For two years at least, and, in some instances, for three or more, this culture may be pursued; after that time it will be found that the parsneps cannot be dug up without injuring the roots of the trees. A very good return may also be obtained by cultivating the *Sàlix* rùbra for basket twigs, in the interstices of the other trees, until their growth smothers the willow stools.

As we advance from the chalk hills to the north-westward, the calcareous stratum of extent and importance which we next meet with is the great oolite, or Bath freestone rock. The trees upon this stratum do not materially differ from those which invest the chalk. If it usually is covered with a bed of hazel calcareous loam, of greater depth than commonly lies over the chalk, yet the rock, when we come to it, is generally more compact, harder, and more difficult to be trenched, than the chalk. The elm flourishes on this stratum more freely than on the chalk. I have had no opportunity of observing any experiment on the culture of the alder and poplar tribe on this stratum; but, the substance of the stone being less porous than the substance of the chalk, I should be thereby led to expect that these trees would not succeed equally well here as on the chalk. I have seen the abele growing spontaneously and vigorously on this stratum. In the valleys which cut this stratum is usually found an extraordinary depth of rich friable loam, in which the *S*àlix frágilis, or crack willow, and some others of the large willows, attain a great stature. The next great calcareous stratum, as we pass to the north-westward, is the mountain limestone, carboniferous or metalliferous limestone. This stratum is, in some respects, modified from the two preceding, by portions of a purple ferruginous clay, which, in certain places, are interposed in joints or other cavities of this rock, and also by layers of chert, and others of firestone, i. e. impure siliceous limestone, alternating with the beds of mountain limestone; and these heterogeneous rocks, and their detritus, in some parts materially affect and modify the soil which is spread over this stratum. We find on the mountain limestone (many of the vegetable products of which have been well elucidated by a correspondent in the *Magazine of Natural History*, vol. iii. p. 410—419.), the sycamore (*A*cer Pseùdo-*P*látanus), the *P*ỳrus hỳbrida, and most of the preceding plants which I have mentioned as natives of the chalk. The holly (*I*lex *A*quifòlium), too, is found here more frequently than on either of the preceding calcareous strata; fostered, no doubt, by the more abundant silex, which is supplied by the detritus of the interposed beds above mentioned; and, from the same cause, the *U*lex europæ̀a (whins, or French furze) usually invests in considerable plenty some of the uncultivated portions of this stratum. I remain, Sir, yours, &c.

Sept. 20. 1832. CAUSIDICUS.

(*To be continued.*)

ART. VII. *A Battering Axe for felling Timber.*

By ROBERT MALLET, Esq.

Sir,

IT has often appeared strange to me that the idea of the battering ram has never, at least to my knowledge, been applied to the felling of timber. When timber is felled for the purpose of clearing, little more than mere strength and endurance are required; and the accumulation of the former, obtainable by means of the battering axe I here present (*fig.* 84.), would be very great: it could be readily procured in places where the saws for this purpose could not be obtained.

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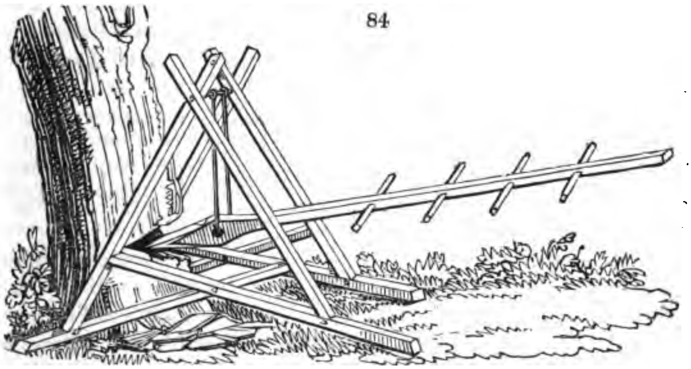

The figure hardly needs explanation. I use the wooden side frames, of the form represented, because they are very strong, and their toes would dig into the ground, and prevent recession from the blows of the axe. The axis of the battering axe above is long enough to allow the side frames to be approached or withdrawn respectively, to suit any-sized tree: a diagonal stay-bar, dropped upon a pin for the purpose, prevents all from falling sidewise. The blade is made like a large socket, or like the spades called in Ireland "fecks," and spiked to the wood. Four men can work at the one represented, and raise or lower the edge of the axe as required, those nearest the tree guiding it. Perhaps such a tool as this might be acceptable to many of your readers.

I am, Sir, yours, &c.
ROBERT MALLET.

Capel Street, Dublin, Feb. 5. 1833.

ART. VIII. *On the Gymnócladus canadénsis, or Coffee Tree of North America.* By A. P. HART, Esq., Barrister at Law, of Montreal, Lower Canada, F. Mont. Nat. Hist. Soc. &c.

Sir,

As there seems to be some incorrectness in your conception of the above tree, and as none of your correspondents have materially corrected your account of it, except my friend Dr. Mease of Philadelphia (Vol. VIII. p. 85.), who mentioned its being a large tree instead of a twining plant, I take the liberty of sending you a description of it, which I trust will not prove wholly uninteresting to you and your readers. *

Pursh, in his *Flora of North America*, a very excellent but sometimes incorrect work, describes the Gymnócladus correctly, as follows, under his column of the class *Decándria Monogýnia* (*Polypétalæ Regulàres*):—

> " Gymnócladus. Calyx tubulosus, quinquefidus. Petala 5 [I find in the barren trees 4, in the fertile 5], æqualia, tubo inserta. Stamina non exserta. Legumen uni-loculare, intus pulposum. Flores racemosi. Dioicus.
>
> " Canadénsis 1. G. foliis bipinnatis, foliolis ovalibus acuminatis pubescentibus." — Pursh, vol. i. p. 304.; Willd. Sp. Pl. iv. p. 816.; Mich. fl. Amer.; Mich. arb. e. 3.; Lam. illus. 823.; Duham. arb. 1. t. 103.

The Gymnócladus is of the Linnæan class Diœ̀cia Decándria, and of the Jussieuean order Leguminòsæ. It is a tree averaging from 30 ft. to 60 ft., and 10 in. to 13 in. in diameter; and flowers from May to July, with white flowers, succeeded by large brown pods, which contain 6 or 8 seeds of a hard consistence and greyish spotted colour. Leaves from 1 ft. to 3 ft. long, and from 10 in. to 20 in. broad, bipinnate, or doubly compound, and composed of leaflets of a darkish dull green colour, and ovate-acuminate figure. The bark is very rough, and the inner bark so bitter and pungent, that a very small piece will cause violent irritation and inflammation when decocted: the extract is aromatic, and highly aperient. The wood is of a fine grain, and very compact and strong; colour rosy: it makes a pretty wood for cabinet-work; and Browne† says, " that, like the locust, it has the valuable property of rapidly converting its sap into perfect wood; so that a trunk 6 in. in diameter has only six lines of sap, and may be employed almost entire." At least one half of the tree is branch-less, and the rest very regular; the terminal branches of large size, and the branches but few in number.

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* This error probably occurred from the accidental transposition of a few lines, in the notes, by the copier of our MS. We knew the tree in Dickson's nursery, at Edinburgh, thirty years ago; and had, for some years before the *Encyclopædia of Plants* was published, one in our own arboretum at Bayswater. The proofs of the *Encyclopædia of Plants* received their final correction from Professor Lindley, as stated in the preface, page iv.; and, as the error escaped that gentleman, it is no wonder that it should have been unseen by us. — *Cond.*

† Sylva Americana, by D. J. Browne. 8vo, pp. 407. Boston, 1832.

It is a native of Canada (Upper and Lower), the Gennessee country, Kentucky, and Tennessee, and all along the Ohio and Illinois rivers. It is called by the French *Gros Févier* (bean tree), from the size and shape of its pods; and *Chicot* (stump tree), from the dead appearance of the tree in winter. It is also called coffee tree, from its seeds being burnt and used as a substitute for coffee; though they form rather a poor one, as the coffee made from them is very rank and bitter.

Some trees of the Gymnócladus are barren, and others fertile; and I see that Browne notices a peculiarity which I have ever observed, that of the epidermis, which is entirely rough, detaching itself in small hard transverse strips rolled backwards at the ends, and projecting from the tree, so as easily to distinguish it from other trees.

I saw, in July last, on the borders of Lake Ontario, a beautiful specimen of the Gymnócladus canadénsis, measuring 53 ft. high and 16½ in. in diameter. It had not a single branch on it up to the height of 19 ft.; but the summit formed a perfect mass of tufted foliage interspersed with the white blossoms, which were then nearly out of bloom. I have now twelve or fourteen young trees, which, in the spring, I shall send to England and Scotland, and am confident that the Gymnócladus will not be thought the least ornamental tree which you could recommend to your friends.—I am, Sir, yours, &c.

Montreal, Nov. 1. 1832. A. P. HART.

MANY of our gardening friends have seen the leaf of the Gymnócladus canadénsis, which, although not especially remarkable in the figure of its leaflets (see the *Encyclopædia of Plants*, p. 842. fig. 13987.), is so in its triply pinnate structure and bough-like amplitude, as scarcely a yard square would include its extreme points. The legume, of which we possess a specimen, received on August 27. 1832., from Mrs. Seaton of Washington, is $5\frac{3}{8}$ in. in length, and nearly 2 in. ($1\frac{7}{8}$) in breadth: it is of a red brown colour, smooth even to a slight degree of polish, but uneven here and there, from the prominence of nerves, which rise at the under edge of the legume, and pass across to the upper edge, and are branched in their progress: the under edge is straight, the upper curved convexly. The legume, towards its under edge, is compressed flat, but towards the upper edge a little tumid from the seeds within, which are affixed to the upper edge by a white stoutish funiculus $\frac{3}{8}$ of an inch in length, 3 to one valve, 2 to the other. Each seed is circular, nearly $\frac{6}{8}$ of an inch across, and so flattened as to be not more than half an inch thick, of an olive brown colour, and as hard as stone. All the space within the legume, not occupied by the seed, is filled with a tenacious dark brown gummy pulp, which, to the taste, is at first sweet, but is followed by a bitterish slightly acrid flavour. The idea of "stump tree," as applied above, seems identical with that conveyed by botanists in the term Gymnócladus, from *gymnos*, naked, and *klados*, a branch. G. canadénsis sometimes reaches 80 ft. in height, as stated in Vol. VIII. p. 272.—*J. D.*

ART. IX. *A Mode of multiplying, and inducing to healthy Growth, the White double-flowered and Purple double-flowered Rockets.* By Mr. WILLIAM WHIDDON, Gardener.

Sir,

As some of my friends have expressed a desire to become acquainted with my mode of propagating those beautiful ornaments of the flower-garden, white and purple rockets, I have referred them for a description of it to the *Gardener's Magazine.* My method is as follows: — As soon as the plants have done flowering, I cut the flower stems half-way down: by so doing, several small shoots will appear at the uppermost part of the portion of the stem left remaining. I then draw a small quantity of soil round the stools, and, if the weather is dry, I give them water at different times. I then make a bed, under a south wall, of equal parts of loam, leaf soil, and sand. I next take off all the strongest shoots, either at the root, or the upper part of the stalks, and plant them in the prepared bed. In about a month I go over them again, and take away all the strongest shoots, and plant them as before; by so doing the shoots left have a better chance of growing. I continue in the above practice until I have taken all the shoots from the parent plants, which then generally die. Last summer I purchased four plants of the white and two of the purple rockets, and by the above plan I have a bed of between forty and fifty fine plants from them; those which were taken off first are certainly the finest, but those taken off last are fine plants; they have many and strong roots; and, as soon as the weather will permit, I shall plant them in the borders with a portion of the same composition. They are now growing in, and I expect they will greatly improve the appearance of, my flower-garden, next midsummer. I am, Sir, yours, &c.

WILLIAM WHIDDON.

Chicheley, Bucks, Jan. 25. 1833.

ART. X. *On the Effects of Barbadoes Naphtha on Trees and on Horses.* By Dr. C. H. WILKINSON, Bath.

MR. CLARK, Mr. Leigh, and many other eminent veterinarians, and private gentlemen as well, have extensively employed the Barbadoes naphtha, with the greatest success, in farcy and other cutaneous affections in the horse; and also, with equal advantage, in all species of chronic coughs, accompanied with loss of appetite, &c. When naphtha is applied to the hoofs, it restores that pliability and elasticity which are always observed in the healthy condition of the feet: on the contrary, when oleaginous substances, or those tarry mixtures artificially made from coal or wood are applied, the horny structure of the hoof is rendered more brittle, and more destitute of its organic character.

From some recent experiments as to the results of its agency in morbid affections of trees, its curative and preventive powers have lately been most satisfactorily demonstrated, particularly in that species of ulcerative process which arises from the agency of the American A`phis, or bug *, as well as from other causes where the bark, alburnum, and even the wood becomes so much destroyed as to prevent the capability of bearing fruit, from such an extensive interruption to the motion of the sap. When the diseased part has been frequently coated with this naphtha, a very curious and quick change takes place in the alburnum and the bark, the solutions of continuity [that is, the gaps, clefts, and openings] are removed, and the sap's operations restored, and the tree enabled to perform its healthy vegetating functions. Oils and artificial preparations from tar, either the product of wood or coal, had been found inefficient, undoubtedly depending on the different conditions of arrangement in the elementary principles of those substances, and the natural distillation from the rocks of Barbadoes. In the former, the elementary atoms of carbon, hydrogen, and oxygen are in chemical combination, not admitting of being decomposed by the agency of animal or vegetable substance; whilst Barbadoes naphtha, or rock oil, is a solution of carbon in hydrogen; the latter serving as the carrying medium to the sap vessels, producing the same restorative effects as have been attempted to be explained with regard to its agency on the absorbent system in the animal kingdom.

ART. XI. *An improved Mode of tongueing Layers.*

By Mr. JAMES MUNRO.

Sir,

THERE has been much talk of late in your Magazine regarding the propriety of *shutting of mouths.* This advice is much easier given than taken, as every one will allow who has had the misfortune of being seated by a drowsy-headed fellow who kept yawning at every five minutes' interval. We say in Scotland that "ganting is smitsum" (yawning is infectious): be that as it may; I shall at present content myself with the knowledge of the fact, that, by some mysterious pressure on the sympathetic nerves, it is almost impossible to resist imitating our neighbour when afflicted with this ungraceful malady. For my own part, I am no enemy to opening mouths. It is, indeed, said that a close mouth catches no flies. Now, Sir, this is wrong in principle; for much better have small fish than no fish: and, in firm faith of this doctrine, I humbly beg leave to lay before you an open mouth; and, in doing so, feel convinced that it will require no mysterious visitation on the sympathies to induce others to follow my example.

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* Does such "ulcerative process" ever arise from the American A`phis, or bug? Do not the countless individuals of this species invariably follow, not precede and occasion, any "ulcerative process" that may be found where they are? — *J. D.*

Most of your readers, and particularly your practical friends, of course understand what is meant by the phrase "tongueing of layers;" and many of them have, no doubt, in common with myself, experienced no small mortification on account of the frequent snappings asunder of the shoots, when performing this operation on some favourite stool; not to mention the difficulty often experienced in making the tongue (at best an unruly member) keep its proper position. In the year 1829, I had a very fine stool of Rose Vittoria *, with upwards of forty strong shoots. This was a prize not to be neglected. "Five times forty," said I, "are ten pounds." Accordingly I set to work with all the pomp of an experienced propagator. A quantity of vegetable mould was deposited on my right, and on my left a quantity of pit sand. My penknife travelled over the surface of a Water of Ayr stone with the rapidity of a waggon on the Manchester railway, till at length all was right, and in went the knife below an eye; and the first shoot snapped in two. At this moment the idea struck me to enter the knife fairly through the next shoot, which I did, bringing it right up the centre of the pith, passing through two or three eyes, until I had made an opening of four inches in length. I call this mouthing layers. To prevent this layer from shutting its mouth, I inserted a small stone between its lips. This some of your quizzical friends would call gagging. In this manner all the rest of the shoots were laid down; and the quantity of fibres produced by this mode was most satisfactory: both the upper and under lip were furnished in such a manner as would have

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* This splendid dark rose was raised from seed, in the Perth nursery, by Mr. Robert Brown, then a member of the firm, and is equal, if not superior, to any rose yet produced.

justified competition with the sturdiest hussar in his majesty's service.

In consequence of the non-residence of some of our gentry, and the idea which prevails that nothing can be good or right unless it come from London or Edinburgh, there is but little of this kind of work required in this or, I may say, in any little country nursery: but any laying which I have had to do for the last two or three years has been done in the above manner; only I have discontinued the use of small stones, and substituted a more palatable morsel, namely, a little decayed moss (*Hýpnum*), and sometimes a small piece of grafting clay.

Upon a trial of this method of laying, propagators will find less risk of breaking; and, by not separating any part of the shoot from the main body, as is the case in tongueing in the ordinary way, an extensive callosity is formed, and an abundance of fibres occasioned.

I am, Sir, yours, &c.

Brechin, April 17. 1833. JAMES MUNRO.

ART. XII. *On cultivating the Pine-apple.*

By Mr. THOMAS APPLEBY.

Sir,

AGREEABLY to promise, I shall now endeavour to detail to you the methods I adopt in cultivating the pine-apple. I hope, my brother gardeners will not charge me with presumption in any expressions I may use. I am induced to write this account solely by a wish to oblige you, and a desire to be useful to the younger part of them, if any thing I have to say can assist them in an employment to which I feel so much attached. I do not assume to have made any discovery in the culture of this esteemed fruit; but I will detail the plans I follow, and the opinions I have formed.

Unfortunately for the pines under my care, the hot-houses here are not well constructed, being old and badly glazed, that is, with wide overlapping; the rafters, also, are very heavy and broad, intercepting a great deal of light: besides, we grow here a vine trained up each rafter. These circumstances combined are by no means favourable to the growth of the pine-apple.

To grow this exotic to perfection, it is necessary to protect it from the severity of the climate all the year; and that mode of protection is best which admits the greatest quantity of light, I conclude, therefore, that metallic rafters, and accurate glazing, giving the glass as little lap as possible, are great advantages: however, it is seldom in the power of the gardener to obtain a situation furnished with these extraordinary facilities; and it is therefore his interest, as well as his duty, to make the best he can of the circumstances in which he is placed. Artificial heat is also indispensably necessary in this branch of horticulture. The mode in which it is furnished here has been detailed already in your Magazine; the heat supplied is perfectly mild, and can, with great facility, be augmented, or diminished, as circumstances require. There is also an excellent opportunity of creating a mild and sweet moisture amongst the plants, by watering the heated stone steam flues. This plan has been practised eleven years, and before the mode of heating with warm water was known in this part of the country.

The most eligible mode for growing pine plants is, undoubtedly, in the rejected bark of tanners; the less it is exhausted by bruising or boiling, the better it is adapted for the purpose, as the tannin preserves it from decay.

The two most frequent evils, in growing pines, are keeping them in too hot a pit, and suffering the soil in the pots to become too dry. Too great a heat from the bark must be avoided by a regular supply of fresh bark to the front and back of the pit, so as to prevent the necessity of wanting a large quantity at the time of shifting, &c., the pines, by riddling the earthy part out of the old bark, and mixing the old and new well together, to prevent excessive fermentation.

The bark heat is too great if it be above 100° of Fahrenheit's thermometer. The heat may be checked by pouring water on the bark bed, by piercing perpendicular holes with a strong smooth rod of considerable thickness, and by keeping the houses cooler than usual, and by the more free admission of air.

With respect to water, I bestow that element more liberally a great deal than is customary. If the temperature in any day rise to 80° inside, the pines in fruit may safely be syringed over the whole herb, three, four, or, in hot weather, six days in the week. Whenever I anticipate any sun, at any time of the year, I give these pines an abundance of water by the syringe: many gardeners, who have come to see me in November or December, have expressed surprise at seeing me syringing the pines at that season; but they could not help saying that the plants looked well, and were swelling off their fruit very surprisingly. The succession plants are also syringed regularly from March to September: during this operation, and on days when the syringe is not employed, I keep up a considerable degree of moisture in the internal air, by pouring water on the flues containing the steam. The only point to be attended to, in the use of such a profusion of water as I employ, is, to see that, either by sunshine or artificial heat, the seeming excess of water is evaporated.

The principle of watering at the roots, that I practise, is, to give water, as soon as the surface of the soil in the pots appears dry, which, with me, is generally about once a week, I give the most water to the white Providence, Enville, and queen's; and less to the Antigua, Havannah, and Montserrat kinds. The quantity to be given to each plant depends on such circumstances, that it must always be left to the discretion of the gardener who has the charge of them. I give quite as much more in summer as in winter. The water used is made, in Mr. Knight's manner, as rich as possible, by mixing with it the richest manure I can obtain; generally hen-dung and soot: this is used from March to September, and once or twice in October: it is given to pine plants of every age. The temperature of the water, when given, is 90°. I cease watering either by the syringe, or at the root, as soon as I perceive a change for ripening. It is always an object with me, to keep all the plants "*slowly growing at all seasons of the year.*"

I take off no roots at any time but such as may have become dead; and I attend particularly to draining the soil in the pots, by placing at the bottom of each pot some clean river gravel, cleared from all sand: and upon this I put a little moss, to prevent the soil from washing down, and filling up this draining.

The soil I use is as open as possible, consisting of rotten sods, and vegetable mould in a decaying state, (formed of small sticks, leaves, &c.), and well-rotted cow-dung, in equal parts, with one tenth of ground bones mixed together when wanted; as I am of opinion that the long preparation and frequent turning of the soil are not only unnecessary, but injurious. The pine-apple is a gross feeder, and will thrive in vegetable manure, however rich or fresh. I have reason to think coagulated blood may be used *to give increased richness to the soil, with benefit.*

A frequent and very injurious practice is, placing the plants too thick in the bed, and by that means preventing their regular expansion, and free growth in their natural form. In the *succession house*, my best plants, in the back row, are more than a yard asunder, and they diminish in distance to the front row, where they average eighteen inches asunder;

my object being, that each plant may lay its leaves in their natural position, without being interfered with by the adjacent ones. Many think this a sacrifice of space; but I have found we always obtain both healthier and more robust plants, and much better fruit.

I use deep pots, and have them, as much as possible, plunged quite up to the rims. My best pines in the last potting are left unfilled up; and in the spring I pull off a few of the lower leaves, remove part of the exhausted soil, and add about five inches of fresh compost, with a quart of bone dust extra, to each plant. This application gives great fertility at the time the plant is fruiting, and saves the danger and inconvenience of potting, tying up, &c.

I continue my attention to every plant till it has perfected its fruit; never huddling any plants together, under the idea that they will fruit off just as well.

With respect to giving air, I never admit any into the house where the plants are in fruit, until the thermometer indicates 80°. The succession house having vines in it, I must, of course, give air to suit them, which is generally such as suits the pines also.

During bright sunshine I keep the walks always wet.

I consider it of importance to have, at least, two fruiting-houses; one for plants in fruit for winter, and the other for those for summer. By keeping them separate, the plants in fruit (especially in winter) can be properly syringed, watered, and kept at a higher temperature than would be prudent if they were mixed with those intended to fruit the spring following.

I am afraid I have lengthened this article too much; but you will admit the importance of the subject, and agree that minuteness, however tedious it may appear, is necessary to the proper care of this excellent vegetable. I have sent you, herewith, a journal and register to which I refer, and shall be happy if any of your readers shall derive any information from my communication. I am, Sir, yours, &c.

THOMAS APPLEBY.

Journal.

I SHALL now detail to you all the operations in pine culture for this year, as they were performed daily. Considerable repetition in words, as in the actions, must unavoidably occur. To some, perhaps, this journal may be of more service than general observations. Young gardeners would find it advantageous to copy it, and compare the different modes adopted at other places with the one here described. I do not say that I shall exactly do the same next year, but I shall not vary much. It may happen that the seasons, or other circumstances, may cause a few days' difference, but the general principles will be acted upon. It is necessary to mention that the succession house is called the large stove; the two fruiting houses are distinguished as the Calcutta and melon house, the latter having been put up for growing melons in, but now used as a pine stove: it has two pits in it.

January, 1832.

5. Pines watered with clear water, heated to 80° or 90°, very sparingly: such as were ripening not watered at all.
13. Pines watered with clear water.
20. The bark bed in the melon house having sunk below the kerb-stones, some fresh bark was put in to fill it up. The bark bed in the large stove, renewed last November, having become temperate, the pit was filled up with fresh bark.
24. Pines watered with clear water.

February.

4. Pines watered with lime water, to kill any worms there might be in or under the pots. To make it, use half a peck of lime to 16 gallons of water; suffer it to settle, and skim off the oil-like substance that floats on the surface.
11. Pines watered with clear water.
21. Pines watered with clear water.
27. The different soils for pine compost got into the sheds to dry, as they are intended to be potted next month. The compost is made as follows: — One part loam, one part vegetable mould, and one part well rotted cow-dung, and about one tenth ground bones.

March.

1. Pines watered with clear water.
5. Commenced the general spring shifting of the pines, by taking the old stumps of fruiting plants out, and pulling off the suckers. The old bark removed out of the front pit in the melon house, and fresh bark got in. Some pines having shown fruit in the succession house, they were taken out and plunged into the pit renewed in the melon house.
6. Calcutta pit renewed, by riddling the dust out of the old bark, and mixing the remainder with new bark.
7. The succession plants tied carefully up with broad bast mat, and removed into the potting shed: a few of the best plunged into the pit in the Calcutta house to fruit. All those intended to fruit top-dressed, by removing part of the exhausted soil, and substituting a very rich compost (made so by mixing it with bone dust) to earth up the plants with.
8. Succession plants potted, the largest into pots 12 in. to 15 in. diameter; the rest into pots in proportion to their size: potted them deep in the pots. Previously to potting, I shook off all the earth of such as were not well rooted, trimmed off all dead roots, and removed a few of the bottom leaves, to allow the more free emission of new roots. No good lively roots taken off at all; did not what is called disroot any: I think it a bad practice, for which no sensible reason can be given. A few clean very small pebbles put at the bottom of each pot, in the larger pots three inches, the smallest half an inch each, to drain the water off: a little moss put over the pebbles, to prevent the drain from filling up. The bark bed in the large stove renewed, by mixing five

large loads of fresh bark with the old, keeping about a foot of the old at top, to plunge the pines in.

9. The succession plants half-plunged in the bark pit of the large stove. I gave them plenty of room, considerably more than they had through the winter, as I expected they would make free growth through the summer. One row of small plants put in front of the Calcutta pit.
10. As much old bark taken out of the back pit in the melon house as could be removed without disturbing the pots, and the vacuity filled up with fresh bark, to renew the heat. A little clear water given to all the pines, to settle the earth about the plants: I do not approve of much water until they begin to grow again. As much steam as possible raised by watering the flues, in order to encourage fresh growth.
17. Watered the fruiting pines with clear water.
24. Watered all the pines with liquid manure, made of one peck of fowls' dung, a quarter of a peck of quicklime, and a quarter of a peck of soot, pouring upon it three gallons of boiling water, and adding thirteen gallons of soft cold water, which left it at a temperature of about 80°.
31. Pines in the fruiting houses watered with liquid manure; the succession plants watered with clear soft water.

April.

7. Pines watered with liquid manure.
16. Pines watered with liquid manure.
21. Pines watered with clear water.
29. Watered the pines with liquid manure.

May.

5. Watered the pines with liquid manure.
12. Pines watered with liquid manure.
18. Pines watered with liquid manure.
26. Pines watered with liquid manure.
30. The winter fruiting pines having all ripened in the front pit of the melon house, the stumps taken out, the suckers pulled off, and the pit renewed.

June.

1. Examined the bark pit in the large stove, and found the heat moderate, so got a load of fresh bark, and filled it up to the rims of the pots; the old stumps of Providence pines, repotted last August, having produced a good sucker each, they were this day taken out, the sucker carefully pulled off, and stuck in among the bark in the fruiting pits. The row of succession plants, plunged in the front of the Calcutta, having grown very well, they were potted; and also such suckers or crowns as had rooted among the bark in the fruiting house were potted; and all of them plunged in the front pit of the melon house.
2. Pines watered with liquid manure, except such as were ripening or newly potted.
8. Watered the pines with liquid manure.
15. Pines watered with liquid manure.
22. Pines watered with limewater.
27. Pines watered with liquid manure. The season being now very warm, water was given very freely, so as to make the soil quite wet.

July.

4. Pines watered with liquid manure.
11. Pines watered with liquid manure.
17. Succession plants tied carefully up with broad bast mat, and taken into the shed to be potted.

18. Succession pines potted in the same manner as in March, which see. The bark pit for them renewed.
19. Half-plunged the succession plants.
20. The old stumps of Providence pines fruited this season taken out, the leaves shortened, and the balls of earth shook clean off, all decayed roots cut off, and the stumps repotted in fresh good earth to produce suckers (this variety being very shy of increase). Plunged them in a part of the pit in the melon house. The two pits in the melon house turned, and four loads of fresh bark put in to raise them to their proper height. The Providence pines to fruit next year plunged up to the rims in the back pit. (This pit never heats too much, it being shallow and narrow.)
21. Some Montserrat pines that were showing fruit, and had been reserved from the succession house, were plunged in the front pit of the melon house for winter fruit. Fruiting pines watered with liquid manure. The rest of the pines newly potted gently syringed over the leaves as usual. Plenty of steam raised morning and evening, to encourage fresh growth in the newly potted plants.
22. A pine pit in a vinery, called the top stove, filled with fresh bark, and all the suckers, crowns, &c., potted and plunged in it.

August.

2. Pines newly potted watered with clear water, fruiting pines with rich water; such as were ripening not watered at all.
11. The weather having been very wet, could not water till this day, and then with clear water.
18. Pines watered with clear water.
22. Bark pits in the melon house having sunk below the kerb-stones, they were filled up with fresh bark. The large succession pit having become rather temperate, it was partly filled up with fresh bark.
24. Pines watered with liquid manure.

September.

1. Watered the pines with liquid manure.
8. Pines watered with liquid manure.
14. Pines watered with liquid manure.
21. Pines watered with liquid manure.
28. Pines watered with clear water.

October.

5. Pines watered with clear water.
11. Bark pit in the succession house filled quite up to rims of the pots and kerb-stones. Most of the pines in the Calcutta house being cut, the old stumps removed, the suckers taken off, and the rest tied up. The bark bed filled up with old bark from the front pit in the melon house; this pit being subject to get too hot with new bark, on account of the steam pipes running quite round to supply the other houses.
12. Front pit of the melon house filled up with fresh bark. The fruiting pines that were in it, and the others tied up yesterday, plunged in the Calcutta house, to swell off their fruit this winter.
13. Succession plants brought from the top stove, and plunged in the front pit of the melon house.
16. For the last four or five days there has been dull weather, often rainy, and always very misty, with heavy dews; so did not water until this day, and then with clear water.
23. Pines watered with liquid manure, intended to be the last time this season. The bark pit in the Calcutta house having become too hot, the pines were moved backward until they stood in hollow cavities.

Holes were also made with a thick strong rod, to suffer the heat to escape.

27. The pit was well watered with lime water, for two purposes; to kill the worms, and cool the bed.

29. The worms all killed, and a fine moisture arising from the bark with watering.

November.

1. Pines watered with clear water, sparingly.
12. Pines watered with clear water, sparingly.
21. Pines watered with clear water.

December.

4. Pines watered with clear water.
18. Pines watered with clear water.
19. The heat of the large pit continuing pretty strong, it was not thought needful to renew it until the shifting time in March. Part of the old bark removed from the outsides, and as much fresh bark as possible put in to fill up the pit.
28. Pines watered with clear water.

Register of Heat in the Pine Stoves.

THE following is the register of the heat in the pine stoves: it is kept by my assistant, and is taken down into a book for that purpose. The heat will generally be found highest at noon, and lowest in the morning, it having gradually fallen during the night. The heat of the fruiting house is taken from one in which pines are in fruit all the year, the plants having always shown before they were brought into it: they could then be managed, as to watering, syringing, &c., as before described. By referring to the column of the external weather, it may be seen that the heat is the highest on clear bright sunny days; which I take to be perfectly natural, as I think it not needful, in growing pines, to keep up the heat every day alike; the same on bright sunny days as on cloudy, rainy, or frosty ones.

	Succession.			Fruiting.			Weather.
Jan.	mo.	no.	ni.	mo.	no.	ni.	
1	61	60	60	66	76	70	rainy morn, cloudy noon, cloudy night.
2	56	59	57	65	78	72	cloudy morn, cloudy no, keen frosty ni.
3	57	61	63	65	76	76	keen frosty mo, cloudy noon, cloudy ni.
4	59	60	61	65	74	66	cloudy morn, cloudy noon, cloudy ni.
5	52	62	55	63	75	72	fine morn, fine noon, keen frosty night.
6	52	60	59	65	72	65	keen frosty m, keen frosty no, keen fr ni.
7	57	59	58	66	70	72	keen frost m, keen frost no, thawing ni.
8	58	62	61	68	75	69	rainy morn, cloudy noon, cloudy night.
9	60	61	60	68	70	68	cloudy morn, rainy noon, cloudy night.
10	58	65	60	66	74	69	drizzly morn, drizzly noon, rainy night.
11	61	65	66	72	72	76	rainy morn, cloudy noon, cloudy night.
12	59	62	62	68	73	68	rainy morn, rainy noon, rainy night.
13	58	68	64	68	74	76	cloudy morn, cloudy noon, cloudy ni.
14	57	60	60	64	74	68	rainy morn, cloudy noon, cloudy night.
15	53	62	59	63	71	76	snowy morn, cloudy noon, fine night.
16	55	61	60	66	76	70	frost morn, cloudy noon, cloudy night.

	Succession.			Fruiting.			Weather.
Jan.	mo.	no.	ni.	mo.	no.	ni.	
17	59	65	64	71	74	78	mild morn, cloudy noon, warm night.
18	62	64	63	72	78	74	cloudy morn, cloudy noon, fine night.
19	58	67	64	70	74	74	fine morn, fine noon, cloudy night.
20	58	66	60	68	73	67	fine morn, sunny noon, fine night.
21	54	62	62	64	79	79	keen frosty m, cloudy noon, cloudy ni.
22	61	70	63	68	74	74	fine frosty morn, sunny noon, cloudy ni.
23	58	64	62	68	72	72	cloudy morn, cloudy noon, fine night.
24	60	67	62	69	73	72	cloudy morn, cloudy noon, fine night.
25	59	69	62	69	79	71	sunny morn, sunny noon, fine night.
26	60	67	66	70	76	78	fine morn, sunny noon, fine night.
27	59	64	61	70	72	73	frosty morn, cloudy noon, frosty night.
28	54	62	60	65	73	65	strong frosty morn, fine noon, frosty ni.
29	55	61	66	69	68	77	keen frosty mo, cloudy no, thawing ni.
30	60	74	65	70	76	76	fine morn, sunny noon, fine night.
31	58	68	63	68	70	70	frosty morn, cloudy noon, cloudy ni.
Feb.							
1	61	65	64	71	76	74	drizzly morn, drizzly noon, cloudy ni.
2	55	56	62	63	68	68	cold cloudy m, cold clo no, cold clo ni.
3	58	64	64	65	73	74	cold cloudy m, cold clo no, cold clo ni.
4	57	69	64	68	80	75	cloud m, fine sunny no, strong windy ni.
5	60	69	63	66	74	70	fine mo, fine sunny no, warm windy ni.
6	63	70	67	72	76	72	warm windy mo, cloudy no, cloudy ni.
7	63	63	69	65	71	67	cloud warm mo, showery no, cloudy ni.
8	62	73	65	71	80	78	fine morn, fine sunny noon, fine night.
9	58	70	70	70	75	77	cloudy morn, cloudy noon, fine night.
10	65	75	66	75	78	76	fine morn, sunny noon, fine night.
11	58	68	63	70	72	76	frosty morn, sunny noon, fine night.
12	59	61	61	65	74	71	fine morn, cloudy noon, fine night.
13	58	74	63	67	81	72	cloudy morn, warm noon, warm night.
14	58	61	61	68	71	70	cloudy morn, cloudy noon, cloudy ni.
15	57	59	64	65	66	76	cloudy morn, cloudy noon, cloudy ni.
16	60	71	61	71	74	70	frosty morn, fine sunny noon, fine ni.
17	56	64	60	65	71	72	keen frosty morn, sunny noon, fine ni.
18	58	69	64	67	70	72	keen frosty morn, fine sunny no, fine ni.
19	56	67	64	66	80	74	keen fro m, fine sunny no, fine clear ni.
20	56	70	60	66	82	71	frosty morn, sunny noon, fine clear ni.
21	54	63	58	65	74	68	frosty morn, sunny noon, fine night.
22	54	60	60	68	74	75	misty cold morn, cloudy no, cloudy ni.
23	57	60	62	66	86	77	misty cold morn, sunny noon, fine night.
24	59	70	65	70	79	74	misty warm m, fine sun no, fine clear ni.
25	55	75	67	66	83	77	keen frosty m, fine sunny noon, fine ni.
26	60	69	61	65	70	70	fine morn, sunny noon, fine evening.
27	57	64	61	71	75	73	warm cloudy m, war cl noon, war cl ni.
28	57	60	61	72	71	76	fine m, cloudy cold no, cloudy cold ni.
29	58	64	61	70	70	72	fine morn, sunny cold noon, fine night.
March							
1	56	60	60	62	67	72	fine mo, cloudy cold no, cloudy cold ni.
2	50	62	63	69	71	73	drizzly morn, cloudy noon, cloudy night.
3	59	66	63	72	78	73	cloudy cold m, cloudy noon, cloudy ni.
4	59	66	65	69	76	73	misty morn, cloudy noon, cloudy night.
5	59	63	64	68	74	73	cloudy morn, drizzly noon, rainy night.
6	58	69	60	68	74	70	drizzly morn, cloudy noon, cloudy ni.
7	53	56	64	64	72	75	rainy morn, rainy noon, rainy night.
8	54	69	62	65	76	74	slight snowy mo, fine sunny no, fine ni.

	Succession.			Fruiting.			Weather.
March	mo.	no.	ni.	mo.	no.	ni.	
9	53	69	61	69	73	72	strong frosty m, cloudy no, fine clear ni.
10	55	76	61	69	95	75	frosty morn, clear sunny noon, fine ni.
11	57	72	69	77	79	75	slight frosty m, sunny no, very warm ni.
12	55	65	69	70	79	77	fine clear m, cloud warm no, fine war ni.
13	62	67	64	71	76	76	cloudy mo, cloudy noon, cloudy night.
14	63	79	69	74	83	70	fine clear morn, sunny clear no, fine ni.
15	60	68	63	62	74	72	cloudy morn, cloudy no, fine clear ni.
16	59	73	64	71	77	74	cloudy morn, fine sunny noon, fine ni.
17	62	66	65	73	76	74	cloudy m, cloudy no, strong windy ni.
18	61	69	64	65	72	64	strong windy m, cloudy no, showery ni.
19	60	67	69	62	72	79	cloudy morn, cloudy no, fine warm ni.
20	60	77	69	68	79	71	rainy morn, showery sunny no, rainy ni.
21	62	77	72	73	80	78	fine clear morn, sunny noon, fine night.
22	65	74	74	76	83	80	cloudy morn, close warm noon, fine ni.
23	65	78	73	76	77	79	fine morn, fine sunny noon, fine night.
24	64	74	64	72	81	74	drizzly morn, close warm no, cloudy ni.
25	59	69	63	71	75	73	frost snow m, showery no, showery ni.
26	63	79	70	73	93	78	fine morn, fine sunny noon, fine night.
27	66	75	69	72	76	75	fine morn, fine sunny noon, fine night.
28	62	70	66	72	74	73	cloudy morn, cloudy noon, cloudy ni.
29	68	74	74	74	76	81	fine morn, fine sunny noon, fine night.
30	62	74	70	72	75	75	fine morn, fine sunny noon, fine night.
31	62	66	66	70	72	72	cloudy morn, cloudy noon, cloudy ni.
April							
1	61	71	66	76	76	71	cloudy warm m, cloudy war no, fine ni.
2	62	81	71	72	87	74	fine morn, fine sunny noon, fine night.
3	59	79	69	73	84	77	cloudy morn, fine sunny no, fine night.
4	65	75	71	65	81	79	cloudy cold m, fine sunny no, fine night.
5	61	84	74	71	97	79	fine morn, very sunny noon, fine night.
6	65	80	72	78	96	81	fine warm morn, very fine noon, fine ni.
7	65	76	68	71	78	74	fine m, clear sunny no, fine warm night.
8	62	62	62	67	72	72	misty morn, rainy noon, rainy night.
9	60	63	66	65	70	72	drizzly morn, cloudy noon, cloudy ni.
10	61	72	65	69	79	72	cloudy morn, cloudy noon, fine night.
11	59	75	65	69	85	75	fine morn, fine sunny noon, fine night.
12	61	66	67	69	72	78	cloudy morn, cloudy noon, cloudy ni.
13	59	68	62	72	84	75	cloudy morn, sunny noon, cloudy night.
14	61	72	66	72	78	77	cloudy morn, cloudy noon, cloudy ni.
15	65	74	69	82	87	84	fine morn, very sunny no, fine warm ni.
16	65	71	73	72	78	73	cloudy morn, cloudy noon, fine night.
17	62	70	69	71	77	77	cloudy morn, fine noon, fine night.
18	58	76	68	68	81	75	fine clear m, fine sunny no, fine warm ni.
19	59	67	64	68	75	71	fine morn, cloudy noon, rainy night.
20	61	73	67	73	82	73	rainy m, warm showery no, cloudy ni.
21	59	67	67	67	76	75	rainy morn, rainy noon, fine night.
22	65	73	68	75	77	76	rainy morn, cloudy noon, fine night.
23	62	73	69	70	81	74	cloudy morn, cloudy noon, fine night.
24	65	68	65	70	75	75	fine morn, cloudy noon, rainy night.
25	63	65	65	73	76	77	fine morn, fine noon, fine night.
26	62	70	65	72	75	72	rainy morn, rainy noon, cloudy night.
27	63	70	63	69	73	69	cloudy morn, cloudy noon, cloudy ni.
28	58	77	68	63	79	71	cloudy m, fine sunny no, fine clear ni.
29	60	76	67	70	85	75	slight frosty morn, cloudy no, fine ni.
30	60	74	70	69	78	72	cloudy morn, showery noon, rainy ni.

	Succession.			Fruiting.			Weather.
May	mo.	no.	ni.	mo.	no.	ni.	
1	64	79	68	70	86	73	fine morn, fine sunny no, fine clear ni.
2	60	65	63	70	71	71	cloudy m, cold rainy no, cold rainy ni.
3	61	77	73	65	78	75	rainy morn, cloudy noon, rainy night.
4	70	78	72	70	80	74	fine clear m, sunny noon, cloudy night.
5	65	70	71	72	80	78	fine morn, fine noon, fine night.
6	60	69	70	70	79	80	fine morn, showery noon, fine night.
7	65	80	79	70	90	83	fine clear m, clear sunny no, fine night.
8	68	70	74	74	84	74	fine morn, sunny noon, fine night.
9	66	80	70	70	86	74	fine morn, sunny noon, fine night.
10	63	75	68	70	80	79	fine morn, fine noon, fine night.
11	63	79	70	73	94	76	fine morn, clear sunny noon, fine night.
12	64	76	67	73	70	73	fine m, cloudy noon, warm showery ni.
13	65	74	67	75	78	73	fine morn, cloudy noon, fine night.
14	65	74	71	70	76	70	fine morn, dull warm noon, fine night.
15	60	72	72	70	82	75	fine morn, clear sunny noon, fine night.
16	62	69	70	70	74	74	fine m, showery noon, showery night.
17	67	76	69	74	80	79	cloudy morn, showery noon, fine night.
18	65	69	72	69	82	79	fine morn, sunny noon, fine night.
19	65	76	71	75	95	75	fine m, clear sunny noon, fine night.
20	68	75	71	76	89	75	fine morn, sunny noon, fine night.
21	64	79	76	75	92	80	fine m, clear sunny noon, fine night.
22	68	71	71	75	77	75	fine morn, cloudy noon, fine night.
23	69	69	71	75	74	78	fine morn, cloudy noon, fine night.
24	63	74	75	71	89	79	fine m, clear sunny noon, fine night.
25	64	77	64	66	86	81	fine morn, sunny noon, fine night.
26	65	70	71	70	88	77	cloudy m, fine sunny no, fine clear ni.
27	65	70	71	70	74	75	cloudy m, cloudy noon, cloudy night.
28	66	79	73	72	90	79	fine morn, sunny noon, cloudy night.
29	65	73	72	67	77	73	cloudy m, cloudy noon, showery night.
30	65	79	72	70	99	78	slight frosty m, sunny noon, rainy night.
31	61	72	68	70	83	70	fine morn, sunny noon, showery night.
June							
1	68	81	72	74	83	76	fine morn, sunny noon, showery night.
2	71	68	74	71	72	70	fine morn, cloudy noon, rainy night.
3	64	77	70	68	102	76	cloudy morn, sunny noon, fine night.
4	66	82	74	74	110	75	fine m, extra-sunny noon, fine night.
5	66	75	71	67	84	70	rainy morn, sunny noon, cloudy night.
6	68	70	70	67	73	69	cloudy m, showery no, showery night.
7	64	68	65	62	69	64	drizzly cold morn, drizzly no, rainy ni.
8	64	68	66	62	69	69	rainy morn, rainy noon, cloudy night.
9	64	74	69	65	85	69	fine morn, showery noon, rainy night.
10	65	77	70	64	89	69	fine morn, cloudy noon, rainy night.
11	65	72	76	64	78	75	cloudy morn, cloudy noon, fine night.
12	65	67	65	63	67	63	cold morn, cold rainy noon, cold night.
13	66	72	72	64	74	69	rainy morn, cloudy noon, rainy night.
14	67	79	79	65	82	73	misty m, cloudy noon, showery night.
15	69	76	74	70	86	73	fine m, warm showery no, warm night.
16	65	75	70	64	81	70	cloudy morn, sunny noon, fine night.
17	68	83	64	64	99	76	fine morn, sunny noon, fine night.
18	63	76	76	64	81	79	cloudy m, cloudy noon, showery night.
19	67	80	77	67	89	77	fine morn, sunny noon, fine night.
20	69	77	75	71	88	81	fine morn, cloudy noon, cloudy night.
21	68	75	77	72	85	81	fine morn, showery noon, fine night.
22	66	70	70	68	91	71	fine morn, sunny noon, fine night.
23	64	70	68	64	72	69	fine morn, fine noon, cloudy night.

	Succession.			Fruiting.			Weather.
June	mo.	no.	ni.	mo.	no.	ni.	
24	65	78	69	66	88	67	cloudy m, sunny noon, showery night.
25	65	72	66	67	75	68	windy m, windy noon, showery night.
26	69	74	72	66	83	74	fine morn, fine noon, fine night.
27	66	74	72	70	83	74	fine morn, fine noon, fine night.
28	67	84	74	62	104	77	fine morn, extra-hot noon, fine night.
29	67	85	74	67	104	77	fine morn, very sunny noon, fine night.
30	66	76	76	67	81	74	fine morn, fine noon, fine night.
July							
1	68	81	73	68	82	79	fine morn, sunny noon, fine night.
2	68	76	76	70	80	74	fine morn, sunny noon, fine night.
3	66	71	71	70	80	74	fine morn, cloudy noon, fine night.
4	69	75	70	70	89	71	fine morn, fine noon, fine night.
5	65	77	71	67	82	77	cloudy morn, cloudy noon, fine night.
6	66	71	70	71	72	70	fine morn, cloudy noon, cloudy night.
7	65	65	64	68	68	64	cloudy m, drizzly noon, rainy night.
8	64	70	67	64	86	73	rainy morn, cloudy noon, fine night.
9	64	69	71	69	74	77	cloudy m, showery noon, cloudy night.
10	66	75	69	65	84	69	cloudy morn, fine noon, fine night.
11	66	75	72	65	92	78	cloudy m, sunny noon, showery night.
12	68	86	72	67	108	77	fine morn, extra-sunny noon, fine night.
13	68	76	70	71	99	82	fine morn, extra-hot noon, fine night.
14	66	69	68	66	75	71	rainy morn, cloudy noon, fine night.
15	66	69	69	66	74	75	fine morn, cloudy noon, fine night.
16	65	69	65	67	75	67	fine morn, cloudy noon, cloudy night.
17	65	75	68	68	81	68	cloudy morn, fine noon, cloudy night.
18	66	67	65	66	76	68	cloudy m, cloudy noon, cloudy night.
19	56	65	65	67	78	70	cold morn, fine noon, fine night.
20	60	75	63	60	79	65	cloudy m, cloudy noon, cloudy night.
21	56	75	61	67	73	63	fine morn, fine noon, cold night.
22	66	76	69	73	92	64	cloudy m, fine sunny no, showery ni.
23	65	68	68	65	72	73	fine morn, cloudy noon, fine night.
24	65	69	68	66	76	69	fine morn, showery noon, fine night.
25	64	82	70	68	110	74	fine m, extra-sunny noon, fine night.
26	65	78	72	67	100	76	cloudy m, fine sunny noon, cloudy ni.
27	67	74	73	68	84	81	cloudy morn, cloudy noon, fine night.
28	68	84	74	68	105	81	cloudy m, hot sunny noon, fine night.
29	68	79	76	69	104	86	fine morn, hot sunny noon, fine night.
30	68	75	72	69	88	73	cloudy morn, cloudy noon, fine night.
31	68	80	72	68	99	74	misty m, fine sunny noon, fine night.
Aug.							
1	66	72	70	68	78	73	cloudy m, cloudy noon, cloudy night.
2	64	68	66	64	70	66	rainy morn, rainy noon, rainy night.
3	64	67	68	63	68	67	rainy m, cloudy noon, cloudy night.
4	66	73	72	66	86	77	cloudy m, gleams of sun at no, fine ni.
5	66	81	75	67	100	85	rainy morn, sunny noon, fine night.
6	66	85	73	67	110	77	fine m, hot sunny noon, rainy night.
7	69	76	74	71	93	80	cloudy morn, fine noon, fine night.
8	69	80	76	71	100	81	fine morn, hot sunny noon, fine night.
9	68	85	78	69	110	80	fine clear m, extra-sunny no, fine warm ni.
10	72	81	76	74	97	81	fine morn, sunny noon, fine night.
11	68	82	74	69	92	81	fine morn, sunny noon, fine night.
12	68	78	75	69	93	81	fine morn, sunny noon, showery night.
13	68	75	71	68	92	77	cloudy morn, sunny noon, fine night.
14	64	79	73	64	92	77	fine cold morn, sunny noon, fine night.
15	66	75	75	66	89	77	fine morn, sunny noon, fine night.

	Succession.			Fruiting.			Weather.
Aug.	mo.	no.	ni.	mo.	no.	ni.	
16	69	77	72	70	87	76	fine morn, showery noon, cloudy night.
17	69	77	72	69	90	75	fine morn, sunny noon, fine night.
18	67	82	73	66	102	76	rainy morn, sunny noon, fine night.
19	67	74	72	66	81	72	rainy m, cloudy noon, showery night.
20	64	76	72	65	99	76	fine morn, sunny noon, cloudy night.
21	66	75	71	65	80	72	cloudy m, cloudy noon, cloudy night.
22	65	75	69	65	85	70	cloudy m, showery noon, showery ni.
23	65	75	69	65	85	70	cloudy m, showery noon, showery ni.
24	64	71	70	64	85	75	fine morn, fine noon, fine night.
25	64	68	67	65	78	67	cloudy m, showery noon, rainy night.
26	65	70	74	65	74	67	fine m, showery noon, showery night.
27	65	78	74	65	91	80	rainy m, warm showery no, rainy night.
28	66	75	65	65	76	70	rainy morn, rainy noon, rainy night.
29	67	75	72	72	86	83	rainy m, showery noon, cloudy night.
30	68	74	71	71	88	84	rainy morn, showery noon, fine night.
31	67	71	73	73	81	78	showery morn, fine noon, cloudy night.
Sept.							
1	66	78	73	73	88	78	rainy m, showery noon, cloudy night.
2	66	80	73	68	100	75	fine morn, hot sunny noon, fine night.
3	73	80	73	70	83	73	fine morn, sunny noon, fine night.
4	67	79	72	69	95	76	fine morn, sunny noon, fine night.
5	66	79	75	66	90	81	fine morn, sunny noon, fine night.
6	66	76	74	66	80	76	misty m, cloudy noon, cloudy night.
7	70	75	75	70	83	80	cloudy m, showery noon, cloudy night.
8	70	78	78	75	88	83	cloudy m, sunny noon, cloudy night.
9	67	80	78	75	95	87	cloudy morn, sunny noon, fine night.
10	66	78	73	69	95	79	cloudy morn, fine noon, fine night.
11	66	80	76	70	95	81	cloudy morn, fine noon, fine night.
12	67	77	73	72	92	80	cloudy morn, sunny noon, fine night.
13	67	75	70	75	83	78	misty morn, drizzly noon, drizzly night.
14	67	75	70	77	80	78	cloudy m, cloudy noon, cloudy night.
15	65	80	70	66	85	72	cloudy morn, fine noon, fine night.
16	65	76	70	70	88	77	cloudy m, cloudy noon, cloudy night.
17	64	73	71	71	81	79	fine morn, cloudy noon, cloudy night.
18	65	83	76	71	98	80	fine morn, sunny noon, cloudy night.
19	66	75	70	71	81	74	misty m, cloudy noon, cloudy night.
20	62	82	66	65	97	69	cloudy morn, sunny noon, rainy night.
21	63	79	71	69	88	80	cloudy m, cloudy noon, cloudy night.
22	60	82	69	66	90	76	fine morn, sunny noon, fine night.
23	60	67	67	69	77	73	cloudy m, cloudy noon, rainy night.
24	65	70	70	74	86	80	cloudy m, cloudy noon, cloudy night.
25	67	76	72	74	76	77	cloudy m, showery noon, fine night.
26	60	77	69	67	88	75	fine morn, cloudy noon, cloudy night.
27	63	66	66	73	75	72	rainy morn, rainy noon, rainy night.
28	62	68	67	68	74	70	cloudy m, cloudy noon, rainy night.
29	65	70	70	70	82	80	rainy m, cloudy noon, cloudy night.
30	66	76	72	78	90	78	misty morn, sunny noon, fine night.
Oct.							
1	69	78	72	73	88	78	rainy morn, fine noon, fine night.
2	70	74	73	73	83	76	rainy m, cloudy noon, cloudy night.
3	68	73	72	72	78	76	cloudy m, cloudy noon, rainy night.
4	66	76	70	78	88	78	cloudy m, showery noon, cloudy night.
5	60	81	73	65	85	76	fine morn, fine noon, fine night.
6	63	82	69	69	94	77	fine sunny m, cloudy noon, cloudy night.
7	63	76	74	67	82	74	rainy morn, rainy noon, rainy night.

	Succession.			Fruiting.			Weather.
Oct.	mo.	no.	ni.	mo.	no.	ni.	
8	68	85	71	70	97	74	fine m, windy sunny noon, cloudy night.
9	68	85	71	72	84	73	cloudy m, cloudy noon, rainy night.
10	70	80	74	71	92	78	cloudy m, sunny noon, cloudy night.
11	64	71	68	65	75	71	cloudy m, cloudy noon, rainy night.
12	65	76	70	69	82	76	cloudy morn, fine noon, fine night.
13	66	78	70	70	86	73	cloudy morn, fine noon, cloudy night.
14	66	69	71	70	73	75	cloudy m, cloudy noon, showery night.
15	68	81	73	70	86	76	cloudy morn, sunny noon, fine night.
16	69	78	71	70	82	76	fine morn, gleamy noon, cloudy night.
17	65	84	71	71	94	75	cloudy m, gleamy noon, cloudy night.
18	66	74	71	71	78	74	cloudy m, cloudy noon, cloudy night.
19	69	76	74	68	79	76	cloudy m, cloudy noon, cloudy night.
20	70	77	72	73	82	74	cloudy m, cloudy noon, cloudy night.
21	67	70	69	72	79	74	misty morn, cloudy noon, fine night.
22	65	70	65	69	85	72	fine morn, cold noon, cold night.
23	60	65	65	63	68	68	cloudy morn, rainy noon, rainy night.
24	60	65	65	64	70	67	cloudy morn, rainy noon, rainy night.
25	61	74	68	60	75	75	cloudy morn, rainy noon, cloudy night.
26	63	74	67	67	73	70	cloudy m, cloudy noon, cloudy night.
27	61	77	75	63	82	72	cloudy m, sunny no, thundering night.
28	59	68	67	65	79	69	fine morn, gleamy noon, fine night.
29	60	71	65	72	82	72	cloudy morn, gleamy noon, fine night.
30	60	77	65	68	83	70	fine m, showery noon, showery night.
31	65	66	63	65	78	68	cloudy morn, cloudy noon, rainy night.
Nov.							
1	65	73	68	70	80	70	fine morn, sunny noon, fine night.
2	60	60	60	65	68	68	rainy morn, rainy noon, fine night.
3	60	69	61	65	83	67	fine morn, sunny noon, fine night.
4	60	68	60	68	82	70	showery m, showery no, snowy night.
5	54	60	58	62	74	72	frosty m, showery no, showery night.
6	53	66	58	65	73	72	fine morn, cloudy noon, fine night.
7	53	75	58	63	85	70	frosty m, sunny no, strong frosty night.
8	52	68	57	69	78	68	keen frosty m, cloudy noon, rainy night.
9	55	56	55	71	71	70	cloudy morn, cloudy noon, fine night.
10	52	53	53	61	68	68	keen frosty m, rainy noon, rainy night.
11	52	53	54	68	81	70	fine morn, cloudy noon, cloudy night.
12	53	66	53	68	75	70	frosty morn, sunny noon, frosty night.
13	50	50	50	66	66	67	keen frost m, frost no, misty thawing ni.
14	54	59	55	68	73	69	rainy morn, cloudy noon, cloudy night.
15	55	59	57	65	72	70	fine morn, cloudy noon, fine night.
16	50	58	55	66	72	70	frosty morn, sunny noon, fine night.
17	50	59	55	68	72	65	frosty morn, frosty noon, frosty night.
18	50	54	53	68	69	69	misty cold m, misty cold no, cloudy ni.
19	52	54	54	65	68	73	cloudy m, cloudy noon, cloudy night.
20	54	55	55	68	68	75	misty morn, misty noon, cloudy night.
21	55	60	59	75	73	72	warm cloudy m, cloudy no, cloudy ni.
22	57	67	60	69	77	75	cloudy morn, cloudy noon, fine night.
23	57	61	58	67	73	71	cloudy m, cloudy noon, cloudy night.
24	57	62	58	70	72	71	misty m, drizzly noon, cloudy night.
25	57	63	60	69	76	73	rainy morn, cloudy noon, fine night.
26	57	65	59	68	74	74	fine morn, sunny noon, fine night.
27	55	67	55	71	74	68	cloudy morn, rainy noon, rainy night.
28	53	68	58	65	72	66	rainy m, showery noon, cloudy night.
29	54	66	58	60	74	64	showery m, windy noon, rainy night.
30	55	66	60	64	75	72	showery morn, sunny noon, fine night.

Dec.	Succession.			Fruiting.			Weather.
	mo.	no.	ni.	mo.	no.	ni.	
1	61	66	64	70	68	69	rainy morn, cloudy noon, cloudy night.
2	61	69	60	70	76	65	showery m, cloudy noon, rainy night.
3	53	66	60	60	73	73	rainy m, cloudy noon, showery night.
4	56	66	58	64	74	68	fine morn, fine noon, fine night.
5	57	64	64	74	76	77	frosty m, cloudy noon, showery night.
6	58	68	60	73	74	69	fine morn, showery noon, fine night.
7	52	64	61	61	74	75	keen frosty m, fine noon, cloudy night.
8	61	72	63	73	84	75	cloudy m, cloudy noon, cloudy night.
9	61	66	61	73	82	72	cloudy m, cloudy noon, cloudy night.
10	60	64	62	72	75	71	cloudy m, cloudy noon, cloudy night.
11	60	64	60	70	76	67	fine morn, fine noon, cloudy night.
12	60	62	60	71	75	70	cloudy m, cloudy noon, cloudy night.
13	56	66	60	70	78	65	cloudy morn, fine noon, fine night.
14	55	68	60	66	68	65	cloudy m, cloudy noon, cloudy night.
15	57	65	58	67	70	70	cloudy morn, fine noon, fine night.
16	54	63	57	64	75	67	keen frosty m,fine but frosty no,fine ni.
17	57	62	60	68	67	70	rainy morn, rainy noon, cloudy night.
18	54	69	58	65	73	69	cloudy morn, fine noon, fine night.
19	51	63	57	65	74	69	keen frosty m, showery no, cloudy ni.
20	48	60	53	62	70	69	keen frosty m, fine noon, frosty night.
21	54	62	57	65	68	66	rainy morn, cloudy noon, cloudy night.
22	58	60	58	64	71	65	cloudy m, cloudy noon, cloudy night.
23	58	61	67	64	71	68	rainy morn, rainy noon, fine night.
24	49	61	62	62	65	64	frosty m, cloudy noon, cloudy night.
25	60	61	59	65	71	64	rainy morn, cloudy noon, cloudy night.
26	53	63	58	64	73	72	rainy morn, fine noon, showery night.
27	52	63	53	64	88	68	fine morn, fine noon, fine night.
28	50	63	54	62	64	63	frosty morn, frosty noon, frosty night.
29	53	55	54	61	64	62	rainy morn, rainy noon, rainy night.
30	50	63	54	61	76	64	fine morn, fine noon, fine night.
31	50	58	58	63	69	64	snowy morn, fine noon, cloudy night.

ART. XIII. *Fertility induced by Spur-pruning.* By G. I. T.

Sir,

ON reperusing Mr. Main's truly kind and flattering review of my work, *The Domestic Gardener's Manual*, in Vol. VII. p. 57. of your Magazine, I perceive a remark which I regret that I did not notice in my late reply to the queries of that gentleman. It did not, however, then occur to me to do so, and I therefore seize the first convenient opportunity of addressing you; for justice to myself, to the reader of my book, and to the cause of science, requires that I should leave nothing obscure or mystified, which it is in my power to render clear and intelligible. In my abbreviated extracts from Mr. Charles Harrison's excellent directions for the spur-pruning of the plum tree (p. 207. par. 228.), the reader will perceive that, at the period of the *summer-prun-*

ing of the second year (supposed to be 1830), our author says, "the buds upon that part of each branch which was produced last year will be formed either into fruitful ones, or push into shoots. If shoots, they will require to be cut down to two inches in length, when they have attained a little woodiness, &c. &c. The shortening of such shoots will generally cause them to form a fruitful bud, or more, near to their origin." (No. 229.) "Let us, " I continue, "examine the philosophy of the facts thus plainly stated. By curtailing the shoots, the regular course of the ascending currents is interrupted, and the direction changed. The few leaves which remain upon the lower part of each shortened shoot now become the sole intermedia through which the maturing influences of light and air are exerted. The buds situated at their basis are excited, and swell, and (now comes the passage referred to by Mr. Main) the electrical currents setting in, to and through the pointed terminations of those buds, and of their leafy appendages, stimulate the former, and bring them into a fruit-bearing condition. The interruption of the principle of growth, by whatever means effected, is always productive of fertility; hence, though we may not be able to trace the operation of causes in all its minutiæ, we may I think, safely ascribe the effect thus produced to the energy of the great natural agents, exerted laterally through a greatly diminished number of the vegetable vital organs."

Mr. Main compliments me upon what he is pleased to designate "the excellent distinction between the principle of growth and that of fructification;" but still he considers that I have been "rather obscure" in my endeavours "to account for the barrenness of a free-growing tree, and the fruitfulness of a stinted one," and, moreover, that I have aimed at "ascribing to electricity the power of forming the members, instead of considering it as an exciter, only, of vegetable life."

It is fortunate for me that I am enabled to refer the reader, at once, to my electrical hypothesis; for it occupies a conspicuous place in your last published Number. (p. 179.) He therein will perceive that I consider the electricity of nature to be derived solely from the sun; and that, in fact, the solar light itself is the electrising medium. I shall not dwell now upon particulars; nor shall I adduce facts in order to demonstrate the wonderful influence of the solar ray upon the foliage of plants; these must be reserved for a future communication: but I think it cannot fail to strike any attentive reader or comparer of the above obscure passage, with my article on electricity, that I could not for one moment intend to convey an idea of the creative power of the ethereal solar fluid. I call it an exciter, a stimulant, and nothing more; though it would not, I conceive, be difficult to place Mr. Main, or any other reader, in the dilemma of either being forced to admit that the exciting agents must be the vital principle of the plant itself; or, that that plant is, *bonâ fide*, an organised being, endowed with sensitive life to a greater or less extent. This is a question which I leave to the speculations and enquiries of the philosophical mind, only venturing to hope that some—many—of your readers may be induced to reflect seriously, and to propose doubts or queries which may serve as stimuli to others whose powers of mind may require to be roused into activity. By thus whetting and sharpening the edge of the mental faculty, sparks of the light of truth may perhaps be elicited, and errors detected.

To return to the point under consideration, and thus conclude this hurried notice: I wish it to be clearly understood, that I conceived when I wrote the passage, and now believe, that when a young lateral shoot, say from the horizontally trained branch of an espalier pear or apple tree, is cut back, about the end of the month of June, to two eyes or buds, or the embryoes of either, those electrical or ethereal currents which had previously acted upon the terminal and higher buds, stimulating the advancing or growing principle, have now no other media to act upon than the few remaining buds or embryoes (preorganised, and existing — not created, though heretofore dormant), situated at the base of the shoot. These they excite, perhaps, into growth and extension; but very frequently into the developement of fruitful buds. How this effect is produced may be secret to human research: at all events, the enquiry is closely connected with that of the source, origin, and progress of buds; and this is a branch of vegetable science which, I trust, will be shortly investigated by the physiologists of the present day. I hope, Sir, that I have at least cleared my meaning in respect to the passage alluded to, although I may have failed to elucidate the natural agency to which it referred.

April 22. 1832. G. I. T.

Art. XIV. *A Proposal to water Peach and Nectarine Trees with Nitre, a Preparation from Blood, &c.* By Joseph Hayward, Esq.

Sir,

It is well known, that, although trees of the peach, apricot, plum, apple, &c., are well furnished with blossom buds, the blossoms often fail in their impregnation, and fall off; and, when they are impregnated and set, they fall off at the stoning; frequently, although they survive the stoning, they become prematurely ripe and fall off, and very few, if any, of the fruit attain maturity; while those which do, become vapid and without flavour. These failures I have proved to be the effect of unwholesome food; and, having, found a remedy in a simple preparation, I beg the favour of such of your readers as have an opportunity, to make a trial of it, and to state the result. Having selected a tree that is in good condition, and well furnished with blossom buds, just as the blossoms are beginning to expand, take a potato fork, and with it make holes all over the surface of the space occupied by the roots (which extend as far from the stem as the branches), at about 18 inches apart, by forcing in the fork to the full depth of its tines, and giving it a gentle heave, by pressing on the end of the handle; then, having dissolved some nitre in water (in the proportion of one ounce to three gallons of water), fill the holes with the solution. No manure must be given; but if, after the stoning of the fruit, the tree should appear to be unequal to sustaining its crop of fruit, the following preparation may be given, in the same manner as the nitre: — To one gallon of blood add one gallon of water, and one ounce of potash; stir the mixture well, and let it stand for a week or ten days; then pour off the solution from the clot, and, mixing one gallon of this liquid with four gallons of water, give it to the trees as above. The remaining clot may be dissolved by adding to it one quart of slacked lime and one gallon of water to one gallon of clot; but this solution must not be given to fruit trees, as it will produce the effect which the nitre is intended to remedy. It will, however, prove a good manure for the cabbage tribe, asparagus, celery, &c. This discovery, which I consider to be of great value, I made some years since; and, as it is not merely accidental, but the result of a regular course of experiments, made with a view of ascertaining the nature and effects of the food of plants, and is founded on physiological and chemical principles, it will, I have no doubt, lead to the establishment of a much more perfect system of manuring than is at present practised.

I am, Sir, yours, &c.

Weymouth, March 18. 1832. JOSEPH HAYWARD.

Art. XV. *On the evil Effects of cropping the Borders in which Fruit Trees grow.* By R. T.

Sir,

Having for some years been an advocate for not cropping the borders of fruit trees, I have noticed, with pleasure, that you have several times called the attention of your readers to the subject. I beg leave, therefore, on the present occasion, to make a few observations for the consideration of those who are of a different opinion; as I think that, before long, it is very likely that, instead of having a border of 10 or 12 ft. wide close to the wall to be constantly dug and cropped, and a gravel walk 4 or 5 ft. wide beyond it, we shall see a wide gravel walk close to the wall, over a previously prepared border; for I am persuaded it is owing more to the digging and manuring the border, than to any other circumstances, that there are so many failures of fruit trees. I have seen the above method (of gravelling the borders to walk upon) practised on a small scale, and I am not aware of a single failure. I have often noticed that, in the formation of borders to vineries, or green-houses where vines were to be planted, after much expense and labour bestowed, it has ended in disappointment; the cause of which I consider to be the planting of the borders with vegetables, if in the kitchen-garden, and with flowers, if in the flower-garden. Perhaps it may not be amiss to mention here, that many persons who are very particular about pruning their vines in the autumn, to prevent their bleeding, will nevertheless delay digging the borders till February or March, when all the roots within the reach of the spade are sure to be cut and made to bleed, without being observed. In many cases where prepared borders have failed to produce fruitful vines or other trees, it is very often to be seen that a tree or vine, planted against a building, merely for the sake of hiding it, seldom fails to produce a crop of fruit, although it has nothing below but the natural soil, and this covered over with gravel, or other materials, to form a walk. I could mention several instances of this kind, some of which are within a few yards of where I am writing, and many others in the neighbourhood; and I have no doubt that many of your readers will be able to see the same, after it has thus been pointed out to them. One of the instances which have come under my observation is within a short distance of my cottage. It is an extensive range of glass, used chiefly for stove and green-house plants, with a vine trained up each rafter, not one of which is worth the trouble bestowed on it annually in tying, &c. The roots of these all running directly into the borders and clumps of a flower-garden, it is not thought that the fault can be in the soil, as it is so well cultivated for the plants in it, but this I consider to be the only cause of their failing; as within a few yards of these is a building of considerable height and length, of the same aspect as the others, having vines trained all over it, which are planted (as far as I can learn) in nothing but the natural soil, having a wide gravel walk over their roots, beyond which they have nothing else but a lawn. They have, therefore, in all probability never been disturbed since they were planted. These I have known for several years, but I do not recollect ever having heard of their failing to produce good crops. Young vines, also, which have been planted amongst them, have begun to bear. Instances of this kind are so numerous, in front of dwelling-houses and other buildings, that it is unnecessary for me to say any more on the subject; I shall therefore conclude with hoping that those who have hitherto attributed it to the soil will reflect whether in some measure it may not be owing to the cause I have mentioned. I am, Sir, yours, &c.

Feb. 26. 1833. R. T.

Art. XVI. *On the Uselessness of earthing up growing Crops of Potatoes.* By Joseph Hayward, Esq., Author of "The Science of Horticulture," &c.

Sir,

I would offer a few hints that may aid the endeavours of those who advocate the benefiting of the condition of the poor: they may contribute to increase the objection which some have urged against exhausting the powers of labour. Mr. Knight's observations regarding the potato are valuable; but there is one laborious operation commonly resorted to in cultivating this vegetable, which, I think, has not been sufficiently considered; and which, I am convinced by more than ten years' experience, is superfluous. Observing that a farmer, in managing a field of potatoes alongside one of mine, did not earth them up, but simply flat-hoed the surface of the soil to clear away the weeds, while I had mine earthed up with great care, I determined on noticing the difference on taking up the crop; and, to my astonishment, he had 14 tons per acre, while I had not more than half the quantity, and his potatoes were of a more marketable quality than mine; being generally of a good size, while mine were large and small. The result induced me to question the farmer; and he told me it was a practice he had followed for many years, as he thought the earthing up was worse than labour thrown away; that, a year or two before, he had obtained 19 tons per acre by the same management. This statement put me upon considering the principles upon which such a result was founded; and it appeared to me that, by drawing up the earth over the potato, in sloping ridges, it was deprived of its due supply of moisture by the rains; for, when they fell, the water was cast into the ditches. Further, in regard to the idea that, by thus earthing up, the number of tubers is increased: the effect is quite the reverse; for experience proves that a potato placed an inch only under the surface of the earth will produce a greater number of tubers than one planted at the depth of a foot. From reasoning thus, I determined to adopt the practice: however, such is the force of prejudice, that I have been able to make but few proselytes. A year or two since, I prevailed on a clergyman to try the practice on a strip of half an acre, running through a large field, treated in the common manner; and he told me that, on taking up the crop, he did not find much difference in the gross quantity; but that those which had not been earthed up were, more generally, of a good size; not so many large and small as the other part of the field. I have no doubt, if potatoes are planted shallow, and placed wide enough apart to admit of the stems being laid down after the young potatoes are formed, and to have the earth between them thrown over 5 in. or 6 in. thick, so as to form a flat surface, that it would increase the crop. But this is a very different operation from that I object to.

I am, Sir, yours, &c.

Radipole, Feb. 7. 1833. JOSEPH HAYWARD.

ART. XVII. *A Description of a Mode of cultivating Onions.*

By Mr. WILLIAM WHIDDON.

Sir,

YOUR correspondent, John Mitchell, jun., treats, in p. 75., on the culture of the onion. I write not to dissuade him from following the plans which his own observation has suggested to him, but to state my own experience on this subject, as it differs widely from his. In March, 1830, I lived as gardener to J. B. Praed, Esq., of Tyringham, Bucks; and, having occasion to make an asparagus bed, I resolved upon sowing onions, of the Deptford sort, in drills between the rows. The ground was not prepared in the way usual for asparagus, but turned over to the depth of one spade only. The soil being of a tenacious and cohesive quality, I used a quantity of coal-ashes and rotten dung; and, all being in readiness for the asparagus, I proceeded to plant it in rows eighteen inches asunder, and the onions in drills between these rows. I finished each row as I proceeded, which caused a great deal of trampling, and the ground was remarkably hard after the whole was completed. When the crops began to grow, I thought of hoeing, thinning, &c.; but, being a native of Northampton, where some of the best onions in the kingdom are grown, I recollected seeing, at different times, onions growing in the hard walk, and these the best sample of a whole acre. I accordingly resolved to let my crop take its chance. Weeding and thinning were performed by the hand, which greatly increased the solidity of the soil. My crop was pulled up without attention being paid to any particular time or form: the onions composing it were sound and good, while the crops of my neighbours were suffering from what are termed mouldy-nosed onions. I had several bushels from a small piece of ground, and was obliged to exchange with my neighbours for picklers. I presented Mr. Atkins, nurseryman, of Northampton, with twelve, which weighed eleven pounds. I planted twenty-four of them the succeeding spring, for seed, which weighed nearly twenty-two pounds, and were shown to several friends before they were planted, who can testify the fact. I cannot say what quantity of seeds they produced, as I left my situation at that time.

A great deal has been said about growing large onions; but, according to my humble opinion, large onions are not the most desirable. From my experience (which, I confess, is not a lengthened one, as I am but a young gardener), an onion from one to two inches' diameter is the most profitable, of the readiest sale, and the best for gardeners and gentlemen. When a large onion goes into a gentleman's kitchen, it is cut, and a part only is used; the remainder loses its quality, and ultimately bears company with the peelings to the dung heap. I advise John Mitchell, if he wishes for large onions, to try as I have suggested above. His soil will suit every purpose. He will find an advantage in time; run no risk in displacing the roots, which is apt to check vegetation; and he will not be so likely to get disease in the crops, as the trampling forms gutters in which he can, if dry weather occur, put water, and supply the roots more gradually with moisture; or, if a continuance of rain should happen, these gutters will carry off the superfluous water.

I am, Sir, yours, &c.

WM. WHIDDON, Gardener.

Chicheley Hall, Bucks, Feb. 28. 1833.

Art. XVIII. *Notes on Mildew, from a Lecture on that Subject by Professor Lindley, delivered at the Horticultural Society's Meeting Room, on April 24.* By J. W. L.

Dr. Lindley began by stating that he did not intend, on the present occasion, to give a regular series of lectures, as that plan required his hearers to attend the whole course, which very few individuals had leisure to do. He therefore now proposed to take a different subject for every lecture, and to make each complete in itself. His first subject was mildew.

Every horticulturist has heard of mildew; and, though it is often confounded with blight, honey-dew, &c., the destructive fungi which constitute the real mildew, and the ravages they occasion, are unfortunately but too familiar to every one accustomed to either a garden or a field. Notwithstanding this, even the most eminent horticulturists know comparatively little either of the nature of this pest, or of its cure. One most important error exists respecting it, and this is, the belief, common among gardeners and agriculturists, that one kind of mildew will infect several kinds of plants: but this can never be the case; each tribe of plants has a mildew peculiar to itself, which cannot, under any circumstances, affect plants of a different kind.

Mildew generally appears on the leaves or stems of plants in the form of red, white, or black spots, as a number of minute projections, as a frosty incrustation, or as a brownish powder; in every case spreading, more or less rapidly, according to its kind, and in its progress withering the leaves, destroying the fruit, and, finally, killing the plant. The popular reasons assigned for this pest are various: it has been ascribed to insects, fog, and even, in one agricultural report, to the inflammation of the oxygen gas in the air towards the end of summer, which scorched the leaves. These opinions have, however, been all proved to be erroneous. Mildew is nothing more than different kinds of fungi, or parasites, attacking different kinds of plants, and varying in appearance and species according to the nature of the plants which they attack. It is the greatest enemy to the agriculturist, but the gardener also suffers from it severely.

The fungi, commonly called mildew, are divided into three classes: — 1. Those which grow, or rather lie, on the surface of leaves, and which perhaps do not derive any nutriment from the plant; 2. Those which are formed in the interior of the stem or leaf, and protrude themselves from it when ripe;

and, 3. Those which only attack the roots. All are extremely simple in their organisation, and very minute in their forms; they seldom appear but in autumn, except in forcing-houses.

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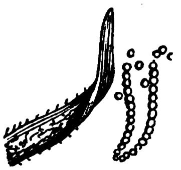

The first class, or mildew composed of those fungi that live on the surface of leaves, injure a plant by preventing its respiration, but do not appear to draw any nourishment from it. One of the most common of the fungi which attack the common cabbage (*fig.* 85.) is Cylindrospòrium concéntricum *Grev.* These very destructive fungi have the appearance of small white patches, or specks, of frosty incrustation, which, when magnified, are found to consist of a number of small cylinders, lying end to end, or across each other. These cylinders are all filled with seed, and burst when it is ripe, scattering it in every direction: wherever it falls upon the leaf it takes root, and thus the fungus spreads rapidly. The superficial mildew which attacks rose trees and many other flowering shrubs is a kind of *U*rèdo. This name, derived from *uro*, Lat., to burn or scorch, is applied to those occasional discolorations of the surfaces of plants which were formerly attributed to blights, or injuries from the atmosphere, and which have the appearance of a brown powder. *U*rèdo effùsa *Grev.* (*fig.* 86.) generally shows itself on the under sides of the leaves of the *R*osàceæ, and spreads rapidly. *U*rèdo *R*òsæ *Pers.* is another kind, which also attacks rose trees. The fungus called Acrospòrium moniliöìdes (*fig.* 87.) consists of a number of globules, attached to each other, which, when magnified, appear like the beads of a necklace, and in many cases are found standing upright. When ripe, these globules fall, and, taking root, form fresh strings, or necklaces, like the first. Sometimes little tufts of these globules appear fixed to stalks; and, from some fancied resemblance to the brushes used for sprinkling holy water, are called Aspergíllus. (*fig.* 88.) The superficial mildew which infects the onion, and is very fatal to that plant, is

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called Bótrytis. Its name signifies a bunch of grapes; and it is thus called from a fancied resemblance between that fruit and its clusters of little globular seeds and seed-vessels. The bean and pea have a superficial mildew, *Urèdo Fàbæ Pers.* (*fig.* 89.), which spreads along their leaves, like white roots curiously interlaced. From these roots spring a number of branch-like shoots, each bearing a ball-like head, or brown berry, which, when ripe, bursts, and discharges seed.

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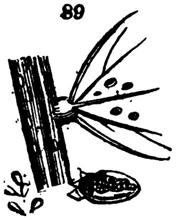

The second class of fungi, viz. those which spring from the interior of leaves and stems, are by far the most fatal. These fungi generally appear in a sort of bag or case, which is supposed to be formed of the cuticle of the affected leaf. The oak is attacked by a species of fungus, *Æcídium*, different varieties of which are found on many kinds of forest trees. The *Æcídium Pìni* (*fig.* 90.), found on pine trees, has, when magnified, the appearance of a number of nine-pins. When ripe, the cuticle which covers the fungus bursts, and emits a powder of a bright orange colour, which is the seed. A mildew of this kind, which infects corn, is highly injurious to the farmer. It is vulgarly called the pepper brand; and, when corn is attacked by it, it gradually consumes the substance of the grain, leaving in its stead only a dark powder, which has a very offensive smell. This fungus is found only on barley, and in this respect differs from the *Urèdo Ségetum,*

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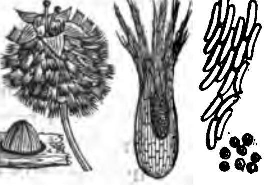
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or smut, which is destructive not only of barley, but also of wheat and oats. The Urèdo Ségetum, or smut, has been the subject of many interesting experiments by Mr. Bauer of Kew, whose discoveries will no doubt throw very considerable light upon the subject. It not only destroys the grain, which it converts into a kind of jelly, but it attacks the leaves and stems, always forming in the interior of the plant, and bursting forth when ripe. Corn is also attacked by a species of Puccínia, a very fatal kind of fungus, which always appears divided into cells. Puccínia Gráminis (*fig.* 95.), which attacks corn, forms in the interior of the stalk, and, when ripe, bursts forth in clusters, like bunches of grapes, of a dark brown colour. Puccínia *Ròsæ Grev.* (*fig.* 96.) appears on the leaves of rose trees, in little brown tufts, which, when opened and magnified, are found divided into extremely minute cells. A correspondent of this Magazine (Vol. IV. p. 320.) mentions that his celery was infected with ferruginous spots, occasioned, no doubt, by the Puccínia *Heraclèi* Grev.; and another correspondent, Mr. Robert Errington (Vol. V. p. 107.), gives a detailed account of the manner in which his celery was attacked by the same disease, and of the means which he adopted for its cure. He describes his celery as having the appearance of having been scorched by fire. He says he dug up the infected plants, and buried them, but this only seemed to increase the evil; and he tried several other remedies, but without any permanent success.

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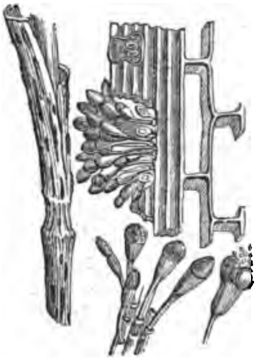

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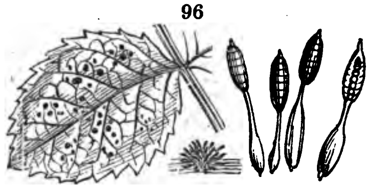

It is a vulgar error to suppose that a berberry tree (*Bérberis* vulgàris *L.*), if planted in a corn field, will, if infected with mildew, communicate the disease to the corn. This cannot be the case, as the mildew which attacks the berberry (Æcídium *Berbéridis* Pers., *fig.* 92.) is quite different from any of the fungi which are found on corn. The berberry mildew, when magnified, is found to consist of a number of small orange cups with white films over each. When ripe, these lids burst, and the top of the cup assumes a ragged uneven appearance, like white fungi. Each cup has within it a number of little boxes containing seeds. The mildew on the pear tree is called Æcídium cancellàtum (*fig.* 97.) [See

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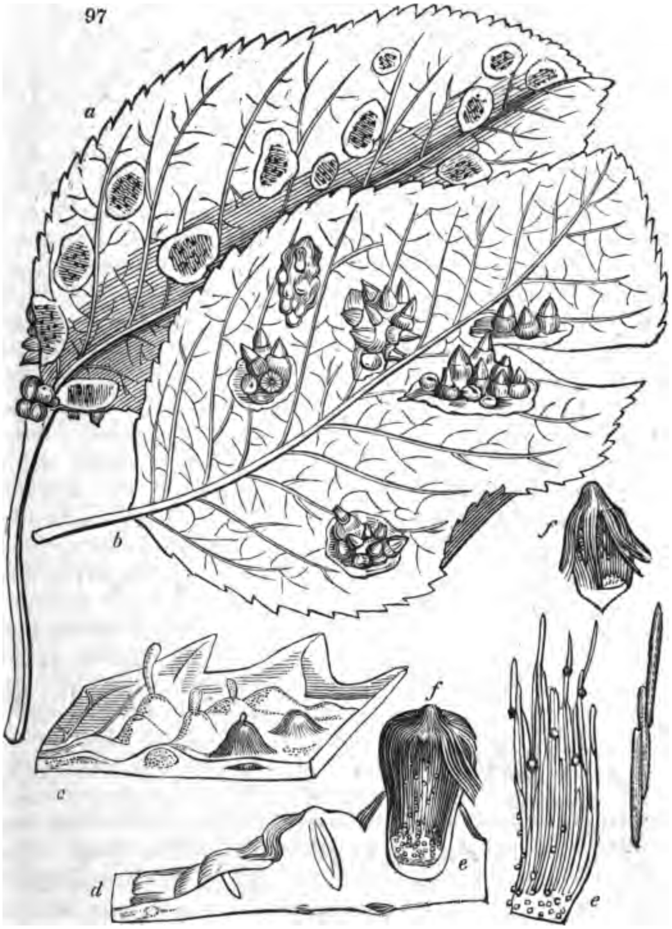
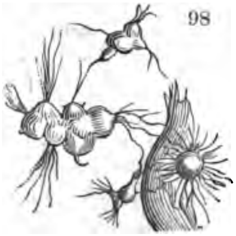


a, A leaf with the Æcidium becoming developed. *b*, A leaf bearing the Æcidium fully developed. *c*, Portion of a leaf with the Æcidium farther developed. *d*, Section of a leaf, to show the fleshy thickening that accompanies the developement of the Æcidium. *e e*, Seeds of the Æcidium: a seed is called a sporidium; in the plural, sporidia. *ff*, Plants of the Æcidium: each is called a peridium; in the plural, peridia.

Vol. VIII. p. 738., and p. 332. of the present volume]: it first appears like mucus, but consists of a number of hairy substances. These hairs, when magnified, appear like a collection of granules of a bulbous shape, each containing a number of balls connected by strings. These balls, though so minute as to be scarcely perceptible by the eye, are yet only receptacles for seed. This is a most destructive fungus: it always seizes on the veins of the leaves, which afterwards turn yellow, and fall off; the branches next wither, and in two or three years a whole orchard is destroyed. Mr. Knight, in 1832, suffered severely from this fungus, and has tried many experiments respecting its cure. Hawthorn trees are attacked by a fungus, which at first appears merely a point made by an insect, but afterwards looks like fungi (Æcídium laceràtum *Dec.*). [See Vol. VIII. p. 179. and 739.] The sycamore fungus is a black spot consisting of oblong purplish bodies, yellow inside, and containing tubes filled with seeds. Æcídium Grossulàriæ *Dec.* (*fig.* 91.) attacks gooseberry bushes, and Æcídium cornùtum (*fig.* 94.) the mountain ash: both spread rapidly, and are very difficult to cure. The ergot on the rye is a well-known and very destructive species of mildew. It partakes of the nature of the truffle, and grows out of a spike of corn like a prolonged kernel. It is long, horny, and cartilaginous; and it consists of fibres closely interlaced. This disease evidently originates in the centre of the stem. It affects maize, various species of grass, and is often found in plants of yellow gentian, &c.

The principal fungi of the third class, or those which attack the roots of plants, are two; and both closely resemble truffles. One of these (Rhizoctònia Crocòrum) (*fig.* 98.), which is of a brownish yellow, attacks crocuses; and, in those countries where the crocus is cultivated for its saffron as an article of commerce, it makes great ravages. It is called by the French *la mort du safran*, and soon destroys a whole crop. The other fungus, Periòla tomentòsa, is found on the potato, lucern, &c. It turns the roots, which are naturally white, of a purplish hue. Its ravages are often attributed to grubs. Both these fungi appear to be propagated by spawn, or fibres which spread through the earth, and cling round the roots which they find in their way.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Having given a rapid sketch of some of the principal kinds of fungi which produce mildew, Dr. Lindley proceeded to speak of the causes which produce them, and of their cure. All are very easily propagated, from the rapidity with which they arrive at maturity, and the immense number of seeds which they produce. Most of the mildew fungi require only twenty-four hours from the first springing of the plant to the ripening of its seed; and the number produced by each may be guessed from the circumstance of one mushroom being sufficient to propagate 250,000,000. The extreme minuteness of the mildew fungi renders them still more numerous. The first class, or the superficial mildew, appears to be communicated by the air, the seeds when ripe being carried by it from one plant to another, and establishing themselves wherever they touch. They destroy a plant by covering the surface of its leaves, and thus preventing respiration. Plants are generally most affected by superficial fungi after a long drought, when the fibres of their roots are unable to imbibe sufficient moisture from the soil, and the plant thus becomes debilitated, and affords an easy prey to the parasite which attacks it: as a proof, Dr. Lindley mentioned that in Scotland, where there are heavy night dews, this fungus is unknown. The cure seems to be abundant watering. Dr. Lindley mentioned a case of some onions, in the gardens of the Society at Chiswick, which were attacked by this fungus. These onions had been transplanted, and their roots were consequently so much weakened as to be unable to imbibe a sufficient quantity of moisture. Dr. Lindley had the plants abundantly watered, which, though it did not cure the infected plants, appeared completely to arrest the progress of the disease. Other onions, not transplanted, were not attacked. A correspondent of this Magazine (Mr. Haycroft, Vol. VIII. p. 40.) recommends a mode of curing this mildew, which appears to be effectual, by cutting off the infected branches, washing the walls with a composition, and removing the infected nails, &c. Sulphur has also been recommended, but is not found to answer. [For other notices, in this Magazine, on the mildew, see Vol. III. p. 119., Vol. IV. p. 281. 320., Vol. V. p. 107., Vol. VII. p. 87.]

The internal mildew evidently cannot be communicated by the air, since it always appears to spring from the interior of the plant, and to be at first covered with a thin skin, from which it does not burst till it is ripe. It is impossible, therefore, that this kind of mildew can be communicated externally, and yet the fact that it is contagious is so clear as not to admit a doubt. The only manner in which it appears probable that it can reach the interior is through the roots. The seeds, when ripe, fall upon the earth, which becomes contaminated by them, and they are sucked up by the spongioles of the roots. [Mr. Dovaston has, also, held this opinion: see Vol. VIII. p. 739.] The correctness of this hypothesis is proved by sowing clean seeds in infected soil; and the young plants from these seeds springing up with the disease upon them. The circumstance of its always attacking the most vigorous plants is thus also explained, as it is evident that, the more rapid the circulation, the greater is the probability of extraneous substances being drawn up with the moisture imbibed by the roots. It is also clear that, in this case, water must aggravate the disease; as, by exciting the plant to suck it up, it would increase the danger of the seeds of the fungi being drawn in with it. This was also the reason that Mr. Errington found that burying his celery roots only made the mildew spread more rapidly. The only cure for this fungus seems to be that adopted by Mr. Knight with his pear trees, viz., taking them up, washing the roots quite clean from every particle of soil, and then replanting them in quite a different part of his grounds.

Red plants are said to be more liable to mildew than any other. Red is, indeed, supposed by some, always to indicate a morbid action, as it shows that the plant is unable to absorb carbonic acid gas from the atmosphere, which is necessary to its perfect health; at all events, it is a proof of disease when leaves, or any other parts of a plant, not naturally red, assume that colour. Other experiments have been made for curing, or at least preventing the spread of, the internal mildew; and Mr. Bauer has found that steeping grains of corn in lime-water will produce the desired effect. There appears no cure for mildew in the roots, but by cutting a deep trench round the infected plants, and cutting off all communication between them and the rest of the field. I regret to have been unable to submit these notes to Professor Lindley: but, if they should contain any thing very erroneous, I will correct it in my introduction to his succeeding lecture on climate. — *J. W. L.*

The young gardener will find it worth his while to follow up these remarks by a perusal of the enumeration of the genera and species of British funguses in the *Hortus Britannicus*, and *Encyclopædia of Plants*, where, besides their names, some information is supplied on their habits. In relation to the above remarks, it is a question, the answer to which would interest, Are all the individual plants of any one species of any genus, to which species a certain species of fungus is peculiar, soil equally eligible, whatever be their condition of health, for the seeds of that fungus to germinate in or upon, and for the plants arising from these seeds to thrive in or upon, and be nourished by? This question is asked in consonance with a view entertained by a thinking friend of ours, who opines that disease, previously to the arrival of the seeds of the fungus, must predispose and prepare the leaves, or other parts, of a plant, as eligible soil for them to germinate in; and that, consequently, parasitic fungi are never the forerunners, but ever the followers, of disease; and, therefore, that, although the seeds of parasitic fungi are, doubtless, dispersed indiscriminately, and fall on the surfaces of vegetables indiscriminately too, they only germinate in and upon those which disease had previously rendered a fit soil for them. — *J. D.*

Art. XIX. *Additional Facts on the Fungus* (*Æcídium cancellàtum* Sowerby) *parasitic on the Leaves and Fruit of the Pear Trees in the Garden at Buscot Park.* By Mr. John Merrick.

Sir,

Relatively to the fungus which has been so injurious to my pear trees, and so very grievous to my master, Pryse Pryse, Esq. M. P., as well as to myself (for no one can see all those beautiful pear trees so much injured by so dreadful a disease without deep regret), I beg to say, that, when I first came to my situation, about nine years since, I found the complaint upon three trees only, and those were upon a north cross wall. I was in hopes that it would soon disappear altogether; but, after a year or two had elapsed, to my great surprise and mortification, I perceived that it got much worse, and that the dreadful disease was spread in different directions in the garden, and had taken its circuit both east and west. It still, year after year, continues its ravages. I certainly can say that I have a few trees that have escaped it in another part of the garden. The trees are for the most part aged, exclusive of those that I have planted since I have been here, which have shared the same fate. All the other trees, I have no doubt, were planted when the garden was first made, which was done by my master's father, E. Loveden, Esq. M.P., about fifty years since. That gentleman was a very great horticulturist, and the garden was made upon a very extensive scale, as he spared no expense. There is nearly a mile of walling, which is from 12 to 14 ft. in height; the soil is a strong stiff loam. There are about 70 fine large pear trees, many of them much admired for their fine spreading branches, each tree covering many yards of the wall. The whole of them throw out their first foliage well at their proper season; but when the leaves are thoroughly expanded, then the disease makes its first appearance by defacing the green leaves with very small red spots.

I am, Sir, yours, &c.

John Merrick.

Buscot Park, near Farringdon.
Dec. 31. 1832.

Additional to the remarks on this subject made in Vol. VIII. p. 738, 739. we have now nought to present, except the following quotation from Sowerby's *English Fungi*, wherein, t. 409. and 410., two coloured figures of the fungus are given, which we have copied and given in p. 329., and detailed descriptions of its forms and habits. On these enough has been said; and we confine our quotation to Mr. Sowerby's hints for preventing its increase. "Æcídium cancellàtum has been long a troublesome parasite in many places, and has been the cause of much loss as to the trees which it attacks, as well as in expensive and useless attempts to get rid of it. I think, however, its very nature, like the dry rot, bespeaks an easy cure; but easy cures do not always gain the confidence due to them. I did not dare to give an easy receipt for the cure of the dry rot, till it was proved to be a good one by Lord Heathfield, who found it succeed. I now may, therefore, venture to give my opinion. By my advice, Lord Heathfield caused proper passages for the admission of common dry air, which became an effectual cure; and I persist in it, that, where there is a certain proportion of dry air, these fungi are not to be found, but only in those seasons when such is natural to the climate. They indicate a certain temperature, like a thermometer, pointing it out when we otherwise do not perceive it; and we may be assured that a certain degree of moisture and temperature is as necessary for the growth of the fungus tribe as any other." These remarks, although they do not supply a definite prescription, may not be wholly useless. Mr. Sowerby was furnished with specimens on June 17. 1807, by John Walker, Esq., of "some wall trees, at his seat at Southgate; it covered, nearly in this manner, a large number of trees. Mr. Walker had the leaves stripped from the trees. . . . . . : On October 12. 1807, William Lewis, Esq., sent me, from Hendon, the leaves of a Chaumontelle pear tree, which grew against an open fence, the inclination of which was to the south-east."

Mr. Merrick will find farther notices on this subject, in p. 329. 332. of the present Number: Mr. Knight's mode of preventing the effects of the Æcídium cancellàtum will be impracticable in the case of trees so old and large as those under the care of Mr. Merrick.

In further connection with the preceding mention of blights by fungus, we shall here introduce to the consideration and canvassing of our practical friends some notices on blights produced on plants by insects: they are written by Rusticus of Godalming, a valued contributor to our *Magazine of Natural History;* but are published in the *Entomological Magazine*, an excellent quarterly journal, price 3*s.* 6*d.* a number, devoted solely to information on insects. We feel no apprehension of the proprietors of that work being at all displeased at the liberty we are taking, as we know their foremost wish is to diffuse entomological knowledge.

"*Observations on the Blights of the Apple" Tree, and its Fruit.* — "I don't know why our brethren on the other side the Atlantic are charged with sending us the greatest pest of our orchards; but so it is. We call an insect the American blight, which, for aught I could ever make out, may have come from China or Botany Bay. However, a name once in vogue will have its day; and one might as well attempt to turn a pig in an entry as argue against an established belief; so American blight it shall be. In very hot weather you may now and then see this blight on the wing; it has just the look of a bit of cotton, or a downy seed, floating in the air, and is driven by every breath of wind quite as readily. If you catch and examine it, you will find it to be just like the plant-louse which infests our rose trees, &c.: but, unlike all other plant-lice, it is clothed and muffled up with cotton wool, in such quantities, that you would at first have no more idea that the lump contained an insect, than that the mass of clothes on a stage-coach box, in winter, contained a man. Some folks wonder what can be the use of so much clothing; I am not much of a theorist, but I should guess that the vermin came from the torrid zone, and Nature kindly furnishes this garment to protect them from the cold of our climate.

"These blights wander wherever it pleases the wind to carry them; and, if bad luck should drive one of them against the branch of an apple tree, there it will stick, creep into a crack in the bark, bring forth its young, and found a colony: the white cotton soon appears in large bunches; branch after branch becomes infected; the tree grows cankery, pines, and dies. How this is effected no one knows, though the cause and effect are too evident to escape the notice of the commonest clown. In large orchards it is vain to hope for a cure, but not so in gardens. Directly you see the least morsel of cotton, make up your mind to a little trouble, and you will get rid of it. In the first place, get a plasterer's whitewashing-brush, then get a large pot of double size, make your man heat it till it is quite liquid, then go with him into the garden and see that he paints over every patch of white, though not bigger than a sixpence; the next morning have the size-pot heated again, and have another hunt; and keep on doing so every morning for a fortnight. Your man will tell you it's no use; tell him that's your business, not his: your neighbours will laugh at you for your pains; do it before they are up. I have tried it, and know it to be effectual. Spirit of tar has been used with partial effect, so also has resin; whitewashing has been often tried, and, as it contains some size, is not entirely useless, and some horticulturists think it ornamental: I do not."

We now present from correspondents the following remarks on

The American Bug, or Cotton Insect (*A'phis lanígera*), which is of great consequence when speaking of the diseases of apple trees. It appears to be spreading continually into new districts, though its method of travelling is uncertain. I have known it make its appearance in gardens far removed from any other, and into which no new trees had been conveyed. But these situations were in the bottom of valleys; and I have observed that it ascends the acclivity of a hill very slowly. Many efforts have been made to deliver our orchards from this new, spreading, and destructive pest; but it seems to me that they have failed of success, chiefly for want of keeping the proper object in view. The destruction of this insect is easy, so far as it can be reached: but in an extensive orchard it is impossible to search every crevice; and none of the applications that have been recommended even profess to answer the principal requisite, of rendering the tree an unpleasant situation for the bug in time to come. Yet without this, even if all in the orchard were destroyed, they would soon cross again the hedges from the neighbouring trees. For the destruction of the American blight, or bug (the latter name, at least, is improper, if names are of consequence), it is requisite that the application made use of should extend its efficacy into crevices to which it cannot be, and has not been, injected; its virtues should endure for some considerable period; it should be not expensive, and not hurtful to the trees. My experience of about two years enables me to speak favourably of the diluted sulphuric acid in this respect (such as is used in apothecaries' shops), which is formed of the mixture (made slowly) of three quarters of an ounce measure of the sulphuric acid with 7½ oz. of water. Care should be taken not to let it touch the garments of the operator, in which it will make holes. It should be applied all over the bark by means of rags, the only parts exempted being the present year's shoots, which it would destroy. It destroys moss and lichens, as well as insects; and if applied in showery weather, will be washed into every crevice in which they can harbour. The insects which are touched with it immediately die; and those that have not been touched with it very soon cease to yield so large a secretion of cotton; by which means, if it be true that the young ones are conveyed by the winds wrapped up in this mantle, their propagation must be much curtailed. After the application of the acid, when the weather has been fair, I have seen them in crevices, still busily at work; but, on the occurrence of a rainy day, which, I suppose, has inundated them with the poisonous fluid, they have been found all dead. I have seen a small tree, that before seemed to languish, thrive remarkably in the second season following the application of the acid; a proof that, at least, it is not injurious to vegetation. This fluid has the recommendation of being void of the offensive odour of some that have been used for the purpose; and, so far from being unsightly, as lime is, no one could discover that an application of it had been made. — *Jonathan Couch. Polperro, Cornwall,* 1830.

The Sublimate of Tar is a Means of destroying the A'phis lanígera. — " In the garden of the Rev. W. Wharton of Gilling, under the care of Mr. J. Bainbridge, the sublimate of tar has been used for the cotton blight, and with complete success, as it has in no instance failed in eradicating that obstinate and destructive insect. The mode of using it is as follows: — take a common painter's brush, and with it rub any part of the tree that is affected; a day or two after, examine the tree carefully, and wherever you find the insect to have burst through the tar, rub it till it is completely covered. When a wound is made in the tree from the tearing off of a branch, or any other cause, a timely application of tar will prevent the insect from obtaining an entrance." (*Birmingham Journal,* June 9. 1832.)

Train Oil applied to the A'phis lanígera with a stiff-haired Brush is a Means of destroying it. — In my father's garden the codlin is almost the only kind of apple the trees of which are infested with this insect, although trees of several kinds of apple grow in the garden. The insects occur in white woolly clusters about the stem and branches, nestling in the hollows and pits so usual in the stem and branches of the codlin. The insects so clustered and situate my father destroys without much difficulty by rubbing in amongst them, with a stiff-haired brush, train oil; and what the pungent hairs of the brush do not stab to death, the oil tends to kill by suffocation, as oil serves to render impervious to the admission of air those breathing holes in the sides of insects by which their respiration is effected. — *J. D.*

Oil and Soot, well mixed together, and applied to the A'phis lanígera, destroy it. — B. B. states (Vol. VIII. p. 52.) that he has " found oil and soot, well mixed together, and rubbed in with a brush, an effectual cure for the A'phis lanígera on apple trees; for, although it has appeared again on the same tree, it has never again attacked the parts of it which had been once well saturated with the mixture." Other remarks on, and prescriptions for destroying, the A'phis lanígera will be found in this Magazine, Vol. I. p. 388., Vol. II. p. 49, 50. 165., Vol. III. p. 30., Vol VII. p. 244. 379. 721, Vol. VIII. p. 52. 149. 357. Besides the information which may be found in these places, we may append the following remarks on this subject: —

Sir, In reading in your Magazine (Vol. II. p. 49.) of an effectual remedy to destroy the American A'phis, an experiment I tried three years ago was brought to my mind.

In a garden which I occupied five years since, I had two old codlin trees, the stems literally covered with the aphides. I tried several expedients to destroy them, but failed, and found they had so secreted themselves in the deep interstices of the bark that no application would reach them. I then, with great care, pared the rough bark entirely off: even then I could not destroy them. I at length discovered that they had infested the root much below the surface of the soil. I removed the earth round the root, and applied a mixture consisting of strong lime water, strongly infused with tobacco; but to no good purpose. Some time after, on digging a hole to plant another tree at twelve feet distant, I took up a running root infested with them. If, then, they can be destroyed on old trees, the destruction must be very difficult. Their prevalence is therefore better prevented than cured; and to avoid their pernicious effects, as few nurseries are entirely free from them, I washed the young trees which I have planted in my present garden, as soon as received, with strong soap suds from the wash-house, with a brush not sufficiently hard to injure the buds, both tops and roots, perfectly clean. I discovered the trees received most essential benefit from the washing, independently of the advantage derived from the prevention of so great an evil, for most of them were more or less affected with the aphides. I afterwards discovered them at the bottom of a young currant tree. I instantly opened the earth, so as to make a pool about 2 ft. over. I then washed the stem with the mixture above named, and filled up the pool, stirring it with a broom, in order that the woolly covering should not prove a protection; by which means I have kept my garden entirely free from them. In a number of apple trees which I planted, two or three died; and to induce those planted in the place of the dead ones to overtake the trees planted the year previous, I washed them in soap-suds about milk-warm, and planted them immediately. The trees thus treated have made shoots more than four feet long the first year, and have fully answered my expectations. I am, Sir, yours, &c. — *Charles Baron. Saffron Walden, Feb.* 7. 1827.

Additional information on the subterraneous habits of the A`phis lanígera will be found in Salisbury's *Hints to the Proprietors of Orchards* (1817, 12mo). I may remark that during the eve of winter I have frequently met with aphides, although, I believe, not of the species lanígera, on the roots of annual and other herbaceous plants, beneath the surface of the soil; usually, if I remember rightly, on roots that were dead, dying, or decaying; and the aphides themselves, although alive, were mostly very inert.

Mr. Baron mentions a currant tree as being infested with aphides. In seasons when "honey dew" (the excretions of aphides, it is said) abounds, aphides will usually be found abounding on the under side of the uppermost leaves of currant trees. I may, however, here mention, in justice to insects, that my father has long been of opinion that insects are, in many instances, guiltless of being the first occasion of a diseased appearance in plants, of which they are generally deemed the original cause, in consequence of their being found coupled with the effect. For an instance, he finds the uppermost leaves of his currant bushes get injured by frost while young, and such leaves, as the shoot lengthens and they become expanded, exhibit a crumpled and, on their upper side, reddened appearance. As the season advances, and warmth increases, aphides resort to the cavities of these crumples on the lower face of the leaf, and, by midsummer and afterward, every crumpled leaf is the home of a host of aphides, which, it is doubtless, now increase that disease which first induced them to resort there. My father's practice in this and every such case is, to remove totally all leaves so affected, by cutting at once off the top of the shoot which bears them, and then to destroy the aphides by any ready means, as crushing, scalding, or burning. — *J. D.*

These various notices on the A`phis lanígera registered, we now resume the observations of Rusticus on

Other Blights of the Apple.—"Now for the moth. This is a beautiful little creature, its wings are studded with silvery shining specks, as though they were inlaid with precious gems. It is the most beautiful of the beautiful tribe to which it belongs, yet from its habits not being known, it is seldom seen in the moth state, and the apple-grower knows no more than the man in the moon to what cause he is indebted for his basketsful of worm-eaten windfalls in the stillest weather. To find the moth in the day-time, the trunks of the apple trees should be carefully looked over; or, if your orchard be surrounded by a wooden fence, it may frequently be found sitting against it, with its pretty wings neatly folded round it. Towards evening, in fact just at sunset, it begins to move, and may then be seen hovering about the little apples, which, by the time the moth leaves the chrysalis, the middle of June, are well knit, and consequently fit for the reception of its eggs, which it lays in the eyes, one only in each, by introducing its long ovipositor between the leaves of the calyx, which form a tent above it that effectually shields it from the inclemency of the weather, or any other casualty. As soon as the egg hatches, the little grub gnaws a hole in the crown of the apple, and soon buries itself in its substance; and it is worthy of remark that the rind of the apple, as if to afford every facility to the destroyer, is thinner here than in any other part, and consequently more easily pierced. The apple most commonly attacked is the codlin, a large early sort, which ripens in July and August.

" The grub, controlled by an unvarying instinct, eats into the apple obliquely downwards, and by thus avoiding the core and pips in no way hinders its growth: at first it makes but slow progress, being little bigger than a thread, but after a fortnight its size and its operations have much increased; it has now eaten half-way down the apple, and the position of the hole at the top, if the apple continue upright, or nearly so, is inconvenient for a purpose it has up to this time been used for, that is, as a pass to get rid of its little pellets of excrement, which are something like fine sawdust or coarse sand; another communication with the outer air is therefore required, and it must be so constructed as to allow the power of gravity to assist in keeping it clear; it is accordingly made directly downwards towards that part of the apple which is lowest, and thus the trouble of thrusting the pellets upwards through the eye of the apple is saved, and a constant admission given to a supply of air without any labour. The hole now made is not, however, sufficiently open for an observer to gain by its means any knowledge of what is going on within; this is only to be obtained by cutting open a number of the apples as they gradually advance towards ripeness; the hole is, however, very easily seen, from its always having adhering to it on the outside, an accumulation of the little grains which have been thrust through. Having completed this work, the grub returns towards the centre of the apple, where he feeds at his ease. When within a few days of being full fed, he, for the first time, enters the core through a round hole gnawed in the hard horny substance which always separates the pips from the pulp of the fruit, and the destroyer now finds himself in that spacious chamber which codlins in particular always have in their centre. From this time he eats only the pips, never again tasting the more common pulp which hitherto had satisfied his unsophisticated palate: now nothing less than the highly flavoured aromatic kernels will suit his tooth, and on these for a few days he feasts in luxury.

" Somehow or other, the pips of an apple are connected with its growth, as the heart of an animal with its life: injure the heart, an animal dies; injure the pips, an apple falls. Whether the fall of his house gives the tenant warning to quit, I cannot say, but quit he does, and that almost immediately; he leaves the core, crawls along his breathing and clearing-out gallery, the mouth of which, before nearly closed, he now gnaws into a smooth round hole, which will permit him free passage without hurting his fat, soft, round body; then out he comes, and for the first time in his life finds himself in the open air. He now wanders about on the ground till he finds the stem of a tree: up this he climbs, and hides himself in some nice little crack in the bark. I should remark, that the fall of the apple, the exit of the grub, and his wandering to this place of security, usually take place in the night-time. In this situation he remains without stirring for a day or two, as if to rest himself after the uncommon fatigue of a two yards' march; he then gnaws away the bark a little, in order to get further in out of the way of observation; and having made a smooth chamber big enough for his wants, he spins a beautiful little milk-white silken case, in which, after a few weeks, he becomes a chrysalis, and in this state remains throughout the winter and until the following June, unless some unlucky blackheaded tit, running up the trunk, peeping into every cranny, and whistling out his merry see-saw, happens to spy him, in which case he is plucked without ceremony from his retreat, and his last moments are spent in the bird's crop; but supposing no such ill-fortune betide him, by the middle of June he is again on the wing, and hovering round the young apples on a midsummer evening as before.

"By burning weeds in your garden, at this time of year, you will effectually drive away this little moth. If you have trees the crops of which you value, make a smoking (mind, not a blazing) fire under each; it will put you to some inconvenience if your garden be near your house, but the apples will repay you for that."

In the third number (published April, 1833) of the *Entomological Magazine*, Rusticus continues this subject in these words: —

"I have another little rascal that eats my apples and pears; but, as I have not made myself master of his history, I will leave him over for another summer for examination; he eats down the stalks of the pears, particularly when they are about the size of gooseberries, and causes them to tumble down by hundreds: I dare say I shall find him out by-and-by."

Art. XX. *Short Communications.*

Australia. — *Sydney.* We have lately received a valuable packet of seeds and dried specimens, from Mr. M'Lean, the under curator of the Sydney Botanic Garden; and also a variety of gratifying information respecting the colony, from Mr. Lawrence, a surgeon, who spent five months in New South Wales last year, chiefly in travelling in the interior among the settlers. The prosperity of the colony has increased much, in consequence of all the new grants of land being paid for, instead of being chiefly given away as formerly. Concentration is thus produced, which is always more favourable to improvement than dispersion. Mr. Lawrence, in his tour through the country (which was in great part made in the society of a Scotch landowner and excellent cultivator), found every where all the improved instruments of British husbandry, two-horse ploughs, drills, horse-hoes, cultivators, threshing machines, and even one of the reaping machines of Bell, first figured in this work. In some of the houses of the Scotch farmers, far in the interior of the country, Mr. Lawrence observed excellent select libraries, and among them, very commonly, the *Encyclopædia Britannica*, or *Brewster's Encyclopædia.* We were gratified to find that our works were also very generally read in the colony. A message was brought us by Mr. Lawrence that a short kitchen-gardening book would be very desirable, and we can recommend, as precisely the sort of publication for a settler, our *Cottage Manual*, which is at once an epitome of the most useful parts of gardening, farming, and cottage building. To this work, which contains three model designs for cottages, we have just added an Appendix, containing thirty designs for cottages, or farm-houses, of different degrees of accommodation, from four to ten rooms. The price of the *Manual* alone is 2*s*., and that of the Appendix 7*s*. The want of a good system of general education is stated to be much felt in the colony, but it is believed that the colonists will soon have a legislature of their own; and then they will relieve themselves from certain very oppressive establishments imposed on them by the mother country. We regret to find from Mr. Lawrence, that a number of letters which we have sent out to our correspondents at Sydney have been lost, as well as letters from some of them to us. The seeds sent us by Mr. M'Lean, we have divided between the Birmingham, Manchester, and Goettingen Botanic Gardens.

Calls at the Nurseries. — We have been our usual rounds among the nurseries, and other London gardens, since the appearance of our last Number, and intended giving our notes on them in the present one. There is, however, no room, and we can only state that Magnòl*ia* conspícua and Wistàr*ia* Consequà*na* have bloomed this season more magnificently than we have ever seen them before. It is gratifying to find the latter plant flowering against the walls of some common street houses; to which, with the Scotch laburnum, that, on the same aspect, blossoms at the same time, it forms a splendid covering. Magnòl*ia* purpùrea has been very fine at Mr. Lee's. The azaleas promise beautifully there, at Mr. Malcolm's, at the Fulham Nursery, at Mr. Chandler's, and indeed every where. We hope to be able to see those of Mr. Waterer and Mr. Donald in the course of next month. Mr. Chandler has made considerable improvements in his hot-houses, and has extended his hot water apparatus in Kewley's manner. The whole of Chandler's nursery, when we saw it, was in excellent order, and the articles beautifully grown. The auriculas at Mr. Hogg's were excellent; and Mr. Groom's tulip bed looks better this year than we ever before saw it. Mr. Knight's plants are in admirable condition, and his Orchídeæ are certainly the best grown that we have seen this year in the neighbourhood of London. Telòpea speciossíma, the waratah plant from New Holland, has bloomed here in very fine style. We never saw the Chelsea Botanic Garden looking so well, especially the rockwork. We are happy to find an arboretum commenced, and the trees distinctly named, in the Surrey Zoological Gardens. It is intended to name the shrubs and herbaceous plants in the same manner, and thus, for all general purposes, to combine a Botanic with a Zoological Garden. — *Cond.*

At Dickson's Nursery, Acre Lane, Brixton Causeway. — On May 6. 1833. a good many auriculas were still beautifully in blossom, and in a healthy and vigorous condition. Of the Cape jasmine (Gardèn*ia* flórida), a plant of ready sale, there were numerous plants in blossom. The collection of hardy herbaceous plants here is, for a small nursery, rather rich, and in excellent order, and will through the season supply to the eye of observers a succession of beauties. — *J. D. sen.*

Messrs. Fairbairn's. — The collection of green-house plants is here of considerable extent, and kept in admirable order, health, and compactness, by having a large proportion of the plants, small, young, and stowed on shelves, so arranged as to make the utmost of the space and the light. Numerous species of hardy herbaceous plants and shrubs are grown here, where I now saw, for the first time, a semi-double pyracantha beautifully in flower. — *J. D. sen. May* 6. 1833.

Dennis and Co.'s collection of pelargoniums exhibited on May 16. a blaze of beauty. — *J. D.*

REVIEWS.

Art. I. *Transactions of the Horticultural Society of London.* Second Series. Vol. I. Part II. 4to. London, Hatchard.

(*Continued from* p. 89.)

24. *The Result of some Experiments on the Growth of Potatoes, tried in the Garden of the Society in the Year* 1831. By John Lindley, Esq. F.R.S., Assistant Secretary. Read Nov. 15. 1831.

For the details of the experiment we refer to the article itself, consisting of nine quarto pages. The experiments were instituted to test the results of Mr. Knight's experiments on the cultivation of the potato, as described in the *Transactions*, vol. vii. p. 405., and as noticed in this Magazine, Vol. V. p. 294. and 718—722., and Mr. Lindley draws the following conclusion, and pronounces it to be quite confirmatory of Mr. Knight's statements. " In order to acquire the greatest possible weight of potatoes per acre, it is necessary that large round heavy tubers should be employed, and that the space allowed for the growth of each plant should be as nearly as possible such as it would naturally occupy, if suffered to spread freely on all sides without interruption; that this space will vary according to the habits of particular varieties, and can only be determined by accurate experiments; that too much and too little room are alike injurious to productiveness; and that, finally, it is quite practicable at least to double the crops that are usually obtained.

" It cannot be necessary for me," says Mr. Lindley, "after this statement, to make any remarks upon the methods at present in use, of planting sets or fragments, or the smallest tubers, or even, as sometimes in Ireland, parings of the potato; the evil consequences of such practices cannot but be apparent to every one."

Our friend Mr. Barnet, of the Experimental Garden of Edinburgh, in a letter dated December 26. 1832, obligingly advises us on various subjects, and has the following remarks on the above one.—*Cond.*

" We have been trying the planting of whole potatoes in wide rows; and, in a trial of three kinds, the mode has proved superior in one kind, the early frame, in rows 3 ft. apart, as this kind has yielded ten bolls [a boll is about six bushels] an acre more than when cultivated in the usual mode; namely, by small sets, and in rows 2 ft. asunder. In the two other kinds, which were late ones, the produce of the new method has been inferior; but one kind had suffered considerably from the depredations of a herd of rats, so that the result in this case has not been satisfactorily ascertained. But more of this at some convenient time."

25. *Upon the Cultivation of the Carnation.* In a Letter to the Secretary. By Mr. William May, F.H.S., of the Pickhill and Hope Nursery, Leamington. Read April 5. 1831.

Mr. May pots his layers off the parent plants, in September, into pots of the size No. 48, in previously prepared soil, composed of one half old leaf mould, and the other half coarse pit sand approaching to grit, having first drained each pot with a handful of potsherds broken small. When the plants are potted and watered, they are placed in a frame filled with old tan, "so that it will just admit the pot and the plant to stand on the surface and not touch the glass:" this frame is kept closed and shaded for a few days, until the plants have recovered, when air is given daily by degrees. When the plants are established, to daily airing are added watering as required, complete exposure in dry warm weather, and careful protection from dew-falls and excess of wet, until November and frequently December. After having passed the frosts of winter in this situation, during which Mr. May merely keeps the lights completely closed and has had them covered with snow for even eight weeks, he, on the return of fine weather, airs and heats them as before, "until the latter end of March; when, for a few days before final removing, I give them full air night and day." Each plant is then potted for blooming into a 30-sized pot, drained to one sixth part of its depth with well broken potsherds, in a compost, prepared in the winter, of three fifths decomposed leaf-soil, one fifth coarse pit sand or grit, and one fifth road-scraping from a limestone-made road, or the subsoil or paring next the stone used for lime. "These," says Mr. May, "I cause to be turned, exposed, and mixed well together; and, as the quantity wanted for even a large stock of carnations is easily looked over and picked by hand, all worms, wire worms, &c., are taken out." The plants, when potted, are plunged in the ground where intended to bloom, so that the rim is just covered with soil."

The remainder of Mr. May's directions we copy entire:—

"Before each pot is plunged, I have a small quantity of soot put into the bottom of the place intended for it, so that the bottom of the pot may touch it when finally placed; this I find of the greatest moment, as it prevents the entry of worms, grubs, and wire worms, all of which appear to have an objection to remain near where it is, and thus it keeps the roots from being disturbed or destroyed, and the plant is in perfect health all through the summer, which cannot be done by any other method that I have tried or seen. Some gardeners grow carnations in large pots placed on the surface, others, in the ground openly; by the former method, the plants are frequently either too moist or too dry; and by the latter, are subject to the wire worm, grub, &c., and, in summers like that of 1830, are destroyed by too much wet.

"In the season of layering, I place an inch thick of fine sandy soil round each pot, in which the layers readily strike root."

The above communication is the result of seven years' practice in the culture of carnations, in the course of which Mr. May tried various experiments, and studied most of the treatises on the subject, but has failed of success by most of the plans he has seen recommended. Those who are aware that the Dianthus Caryophýllus, the acknowledged origin of all our garden carnations, picotees, &c., is found wild in this country, mainly on old walls, as those in Norwich, and of Rochester, Deal, and Sandown Castles, will observe with pleasure, in the "coarse pit sand or grits" and the "scrapings of a limestone road" prescribed above, considerable assimilation to that mortary matter which forms the soil of the plants of our native species. See on this subject also a remark quoted from Mr. Sweet's *Florist's Guide*, in our Vol. VII. p. 478.—*J. D.*

26. *An Account of a new Kind of Protecting Frame to be used in forcing Asparagus, Sea-kale, &c., in the open Ground.* In a Letter to the Assistant Secretary. By Mr. John Dick of Ballindean, C.M.H.S. Read Nov. 2. 1830.

This communication exhibits figures and descriptions of two frames, formed on one principle, but differing in dimensions, according to the object for which each is intended. Each is constructed altogether of wood, and is of an oblong form, covered with a span roof, the roof on one side being mainly formed of a range of hinged lift-up shutters; each, too, is to be placed over the plants to be forced, and covered with hot dung. The first is intended for forcing sea-kale, rhubarb, or any plants grown in rows in the open garden. The following are the particulars of its structure, management, and advantages: —

It is 12 ft. long, and Mr. Dick prefers this length to a greater, as it is easily lifted about without the joints being broken by twisting; the breadth about 1½ ft.; and the height to the top of the side wall about 8 in., and to the ridge of the roof about 1½ ft.. The wood (boarding, we presume) ought not to be less than five eighths or three fourths of an inch thick. The shutters are three, hinged within 3 in. of the ridge of the roof, and fall on four rafters of about 8 in. wide: the hinges may be of metal, of leather, or even of linen. A hole, 6 in. square, is cut in each of the end rafters, and one in one of the remaining rafters, apparently towards their top part, and these holes have square boxes adapted to them; the end ones are for occasional ventilation, and that towards the middle is for facilitating the examination of a thermometer that is fixed inside the frame. For this thermometer a scale engraved on brass is recommended; "for, in such situations," scales on wood "soon become obliterated."

"When to be used, the frame is placed over a row of sea-kale, &c., and sunk almost 2 in. in the soil, so as to keep out mice and snails. It is then covered all over with about 6 in. of warm dung, or rather more, at the sides of the frame. The plants will soon be stimulated into growth by the gentle warmth thus communicated; they can be watched by means of the shutters; the temperature of the frame can be ascertained by inserting the thermometer in the middle box; ventilation can be effected by the end boxes; warmth can be renewed or increased, if necessary, by exchanging a little of the dung, when cooling, for some fresh. When the forcing begins, the thermometer should be kept about 60°; after it may gradually advance to 65° or 70°, regulating it according to the objects in view.

"This kind of frame, if judiciously managed, will be found much superior to the earthenware covers that are commonly used, and also more economical; for neither is it subject to the expense of breakage, nor does it consume more than one half the quantity of dung. Further, it keeps the border in which the plants are growing dry, and prevents its being chilled by being soaked with rain; all of which are important advantages that do not attend the use of earthen covers."

Mr. Dick's frame for the forcing of asparagus principally differs in being wider and deeper, namely "about a yard wide, and about 1¾ ft. deep to the ridge of the roof, and the side walls about three fourths of a foot high. The frame, when used, is to be placed over the asparagus bed, its edge being sunk three or four inches below the surface of the soil, which is to slope gradually outwards, so that the dung lining may be applied directly below the edge of the frame, which is then covered with hot dung, but in greater abundance than in the case of sea-kale, because there is more earth to be heated."

"The management of the forcing consists in taking care that the heat is not strong for some time after the frame is placed. The heads which first appear will be small and weak, as is always the case, but they will be gradually succeeded by stronger. The cutting should not be prolonged too much; a fortnight, or a little more, is as much as is expedient. In the end, the bed is to be gradually cooled, and the frame removed, and the bed will cease to produce asparagus till the natural period of its growth arrives, when it will revive, and may be cut again if required. This is, however, not advisable, as the unimpeded growth of the asparagus through the summer will nearly restore the bed to its former vigour before the succeeding winter. It is better, however, not to force a bed oftener than every two years. If asparagus were grown in rows, instead of beds, then the frame described for sea-kale, &c., would serve equally well for asparagus.

27. *Note upon the Cannon Hall Muscat Grape.* By John Lindley, Esq. F.R.S., Assistant Secretary. Read Jan. 17. 1832.

A delicious grape resembling the muscat of Alexandria. Specimens of it were sent to the Society in August, 1831, by Mr. Robert Buck of Blackheath, who first became acquainted with it "while in the service of Lord Bagot, at Blithfield Hall, in consequence of a plant having been presented to his lordship by Charles Spencer Stanhope, Esq., of Cannon Hall, in Yorkshire, as one of the finest and largest grapes in England, a character which it has been found by experience to deserve." It differs from the muscat of Alexandria, in having wood rather stronger, leaves much larger, and petioles much thicker; its bunch also sets more thinly and regularly; its berries are perceptibly longer, their flesh is less firm, although equally rich; and it ripens by the side of the muscat of Alexandria full a fortnight earlier. Mr. Buck "grows it in a succession pine stove, and keeps the temperature as low as his pines will bear in winter, till the middle or end of February, when he gradually increases the warmth, so that it shall arrive at about pine-apple heat by the time the berries are swelling; this he does in order to extend the pedicels as much as possible; for one of the peculiarities of the variety is, that although the berries in setting are so far apart that it would seem as if the bunch would be very imperfect when ripe, yet they finally become so large that a subsequent thinning is absolutely necessary. The bunch is about 6 in. long, and fully as broad across the shoulders; the berries hang loosely, and before ripening are of a rich yellowish green, but afterwards become of a bright pale amber colour, oval, and about 12 lines long by 9½ or 10 across, with the skin tough, and the flesh solid, juicy, sweet, and extremely high flavoured." Mr. Buck deems the fruit capable of hanging a long time on the vine after being ripe.

(*To be continued.*)

Art. II. *Catalogue of Works on Gardening, Agriculture, Botany, Rural Architecture, &c., lately published, with some Account of those considered the most interesting.*

BRITAIN.

Hooker, W. J., LL.D., King's Professor of Botany in the Glasgow University: The Botanical Miscellany; containing Figures and Descriptions of such Plants as recommend themselves by their novelty, rarity, or history, or by the uses to which they are applied. In quarterly parts, 8vo, 10*s.* 6*d.* each. London, 1832.

Part ix. was published on the 1st of March. It completes the third volume, and contains a titlepage and index. The communications in it are as follows: — The conclusion of the history of the Huwa, the inhabitants of the province Emirna in Madagascar: 32 pages. Botanical description of the Tanghin, *Tanghínia* veneníflua, by Professor Bojer. This is the Cérber*a* *Tánghin* of the *Botanical Magazine*, t. 2968. Illustrations of Indian Botany, by Dr. Wight: to this are attached exquisite figures of *Limònia* missiònis, Ixòr*a* parviflòra, grandiflòra, a superb-blossomed species, Salàcia lævigàta? *Cadàba* triphýlla, Convólvulus *Turpèthum*, Glycósmis triphýlla, Jussiæ'*a* rèpens, and *Pongàmia* religiòsa. Contributions towards a Flora of South America and the Islands of the Pacific, by Dr. Hooker and Mr. Arnott, continued from part viii.: the continuation occupies 65 pages, and is an important contribution to scientific botany: the more popular genera of which species are described are Fúchs*ia*, Œnothèra, Cùphea, *Mýrtus*, *P*sídium, Eugèni*a*, Maleshérb*ia*, *Loàsa*, Calandríni*a*, *Rìbes*, Escallòn*ia*, *E*rýngium. Notice respecting Mr. Berkley's *Gleanings of British A'lgæ.* Notice respecting the *Illustrations of the Genera of German Plants.* Account of Indian Labiàtæ, in the collection of J. F. Royle, Esq., Director of the Hon. the East India Company's Botanic Garden at

Saharumpur, &c., by George Bentham, Esq.: a valuable paper to systematic botany. Description by Drs. Greville and Hooker of *P*olypòdium melánopum, and Cryptográmma retrofrácta, of which figures were given in part viii.: see our Vol. VIII. p. 714.

Hooker, W. J., LL.D.: A new and improved Edition of Curtis's Botanical Magazine. In numbers, each containing four coloured figures, with amended botanical descriptions, and all the figures and descriptions arranged according to the natural orders, by Dr. Hooker: to which is added the most approved method of culture, by Samuel Curtis, F.L.S. Each number, with the figures partly coloured, 1*s.*; with them wholly coloured, 2*s.*

Mr. Curtis and Dr. Hooker are, in the acts bespoken, doing the gardening and botanical public a great service; for, important as is the first edition of *The Botanical Magazine* to botanists and cultivators of flower plants, for the elucidation of their pursuit, its price makes it inaccessible to too many of them. The present edition goes to remedy this inconvenience. The first edition has, too, the fault of having the various species of a genus (where several species of a genus have been figured in the work) scattered through two, more, or many volumes: take the genus *I*'ris as an example. In the present edition the species figured and described are to succeed each other in the natural order of their kindred relations. This circumstance would lead us much to prefer the new edition to the old. The first number was published on April 1. 1833, and a sight of it has given us pleasure. It contains a preface, in which is sketched an outline of those points in the structure of plants which are most relevant in determining their natural resemblances and affinities. In succession to this, the characters of De Candolle's first order, the *R*anunculàceæ, are given, and those of the first tribe in it, the *C*lematídeæ; then follow the characters of the genus *C*lématis, and pictures and descriptions of four species of it.

Hooker, W. J., LL.D., &c. &c., King's Professor of Botany in the University of Glasgow: The English Flora of Sir J. E. Smith, Class XXIV., Cryptogàmia, Vol. V. Or Vol. II. of Dr. Hooker's *British Flora*, Part I., comprising the Mosses, Hepáticæ, Lichens, *C*haràceæ, and *A*'lgæ. 8vo, 432 pages, in boards. London, 1833. 12*s.*

The facilities for acquiring a knowledge of the phænogamous plants of Britain have for some time past been sufficiently numerous and accessible, to enable very many of the admirers of the vegetable creation to do themselves the pleasure of becoming acquainted with this portion of it. The case has been different in relation to the cryptogamic portion of the British flora; for the works published on it have hitherto been written in the Latin language, or, if in English, as in the case of *English Botany*, have been too expensive to be generally possessed. The present half-volume, happily, now alters this case in relation to all of the Cryptogàmia except the funguses; and the succeeding half-volume in which these are to be described, it is stated in the preface to the present half, "will be published with all the speed consistent with careful execution."

On the merits in the details of the execution of the half-volume now before me, I will frankly declare myself incompetent to speak; and this, because I have for years past postponed the examination of the plants it describes on the very account of the non-existence of such an intelligible introduction to an acquaintance with them. "The work then is written intelligibly and clearly?" It is: and I think it is also written with a careful regard to accuracy. I may state that I have taken a collection of thirty-two named species of moss (most kindly given to me by an amiable botanist), and compared each of them with the generic and specific characters ascribed to the same names in the book, and that they have corresponded satisfactorily in every instance. The inference, then, is fair, that the mosses are clearly and faithfully described; and hence the assumption is natural, that the plants of the remaining orders are described in like manner.

Rennie, James, M.A., Professor of Natural History, King's College, London, aided by some of the most eminent Botanists of Europe: The Magazine of Botany; the first Number containing 8 coloured figures of the most rare and valuable specimens of plants and flowers, executed by eminent artists, and correctly coloured; also 16 quarto pages of closely printed letterpress, in double columns, consisting entirely of original articles. London, 1833. 1*s.* a Number.

This is the fourth Gardener's Magazine which has been commenced since our work appeared, and it may be considered as an additional evidence of the interest which the public take in gardening subjects. We do not think it necessary to give an opinion of the merits of the work. Let the public purchase it, and judge for themselves. We can only refer them to what we have stated, in a former volume

(Vol. VII. p. 601.), of the first and eldest of our children in this way; or suckers, as some might call them, — certainly, not offsets. Our endeavour shall be to continue to render our own work, what we are confident it has hitherto been, equal, if not superior, to the whole of them put together. If any reader of these works, who compares them with the *Gardener's Magazine*, thinks otherwise, we shall be extremely obliged to him to say so, and to point out in what he thinks we are deficient.

Harrison, Joseph, Conductor: The Floricultural Cabinet, and Florists' Magazine. In monthly Numbers, at 6*d.* each. No. 1. March, 1833. 8vo, 24 pages, and two coloured prints. London, Whittaker.

This is the cheapest book on floriculture which has yet been published. One of the prints is a coloured lithograph of Levick's Commander in chief georgina, on which the conductor remarks, it "gives a very correct representation of its striped crimson flowers: but the plant, in addition, produces entire flowers of a rich velvet hue, and others of a fine light scarlet; the whole making a very striking and highly beautiful appearance." The second print exhibits four coloured very well executed woodcuts of the following plants: *Verónica* fruticulòsa; *V.* saxátilis, less faithfully portrayed in its leaves and pubescence than it should be; Lobèl*ia* speciòsa, and *H*ésperis speciòsa: these are engraved by O. Jewitt. We have very rarely seen the pubescence of plants represented to our satisfaction in woodcuts.

The information supplied in the number is useful, and well worth the money.

Williams, Charles (Author of "Art in Nature, and Science anticipated"): The Vegetable World. 12mo, 218 pages, with an engraved Frontispiece, exhibiting, in six compartments, Fruit, Flowers, Trees, Forests, Ferns and Funguses, and Grain. London, Westley and Davis, 1833.

A compilation of facts and notices on plants remarkable for their structure, attributes, and extensive usefulness to mankind; and it is the most richly stored and best concocted compilation on the subject which we have ever seen. Its great fault is the trick of making all its information pass through the lips of Mr. and Mrs. Elwood, and their son Frederick, and daughter Emma. The parents speak only pearls, and the children question and animadvert with more than suitable sagacity. The author admits here and there very instructive discussions on popular subjects, but without ever wandering very widely from his subject. Thus, with the information on flax and hemp is associated an account of the mode in, and extent to, which they are manufactured in this and other countries; and so in the case of many other plants and vegetable subjects. The book will be a treasure to boys and girls, and may be profitably read by men and women.

Marshall, Henry, Deputy Inspector General of Army Hospitals: A Contribution to a Natural and Economical History of the Coco-nut Tree. Pamphlet 8vo, 30 pages. Edinburgh, Carfrae; London, Longman, 1833.

Every gardener who delights in tropical plants, and esteems the palms, and we hope there is not one who does not, should possess this pamphlet. We know not its price, but presume it cannot be high.

Macgillivray W.: The Travels and Researches of Alexander von Humboldt; being a condensed Narrative of his Journeys in the Equinoctial Regions of America, and in Asiatic Russia; together with Analyses of his more important Investigations. With a Portrait of Humboldt, a Map of the Orinoco, and five other Engravings. Foolscap 8vo, 424 pages (forming the tenth volume of the *Edinburgh Cabinet Library*). Edinburgh and London, 1832. *5s.*

Mudie, Robert: Guide to the Observing of Nature. 12mo, 372 pages. Whittaker and Co., London; Waugh and Innes, Edinburgh; 1832. (Vol. lxxvii. of *Constable's Miscellany.*)

Some of our young gardening friends occasionally wish to buy books for recreative reading. We have named these two, because we think them eligible for their purchasing, and because each speaks enough on vegetable nature to justify the mention of both in this Magazine.

Doyle, Martin, Author of "Hints to Small Farmers," "Address to the Landlords of Ireland," &c.: Practical Gardening, clear, simple, and concise, for the Use of all Classes; containing many new and valuable Directions for improved Culture and early Production. 12mo, 112 pages. Dublin, London, and Edinburgh, 1833. 1*s.* 6*d.*

Very good indeed, in relation to the kitchen-garden. What we think a fault in it is, that the sowings, &c., directed under each month, are not directed for any set portion of the month, and the range of thirty-one days is a wide space of time. A Second Part, in which the culture of fruits and flowers is to be taught, is in preparation, and will soon be published.

Rennie, James, M. A., Professor of Zoology to King's College, London: Alphabet of Scientific Gardening, for the Use of Beginners. 18mo, 120 pages, with cuts. London, 1833. 2*s.* 6*d.*

"My subject has two grand divisions: the food of plants, and the philosophical principles of garden operations for the management of this food." (p. 3.)

Kenrick, William: The New American Orchardist; or, an Account of the most valuable Varieties of Fruit, adapted to Cultivation in the United States, from the Latitude of 25° to 54°; with the Uses, Modes of cultivating, and the Management of them; Remedies for the Maladies to which they are subject from noxious Insects and other Causes, &c. Also, a brief Description of the most ornamental Forest Trees, Shrubs, Flowers, &c. 8vo, 424 pages. Boston, United States; Carter and Co., and Russell and Co.; 1833. (Neither the price nor a British publisher stated.)

This will prove a very valuable manual to those in America who addict themselves to the cultivation of fruits. It is for the Americans what Lindley's *Guide to the Orchard and Kitchen-Garden* is to the British, except that the present work confines itself to fruits. Its contents have been derived from considerable practical experience, research, and examination, in the subject, by the author and some friends of his; but it is still, in good proportion, a compilation from all the works which the author could procure on his subject, and the later of those published in England have been liberally drawn on. The author gives a list of the titles of the works he has had recourse to. There is a good deal of patriotism in the author's feeling; and he is anxious to promote the passion for, and emulation in, gardening, which are now, in America, on all sides, kindling into resultful action. The book, too, may prove useful to British gardeners, as a means of teaching them the qualities of certain American fruits. In the "Introduction" are these remarks: — "In England, however, they cannot duly appreciate the value of our native fruits, and those of other climates equally favoured with us: their high northern latitude forbids it; although they have done wonders in counteracting the hostility of their seasons and climate. In their vast collection of fruits, which they have congregated from all climates, in their Horticultural Society's Garden, at Chiswick, I find, by the Society's catalogue for 1826, that they have at least fifty varieties of the native peaches of America, the selections from the extensive native orchards of this fruit, raised in the middle and western states for distillation. All these, so fine in our climate, so much admired by travellers, are, with but *two exceptions*, rejected as '*worthless*,' not being adapted to their latitude, and not arriving to their full maturity and excellence, even on the walls to which their cultivation is confined. (See vol. ii. No. 54. of the *Pomological Magazine*.) Other varieties of native fruit, so superior in our own climate, are by them almost as little noticed. The apples of America, — the fine selections during two centuries, from the innumerable native orchards." Not one syllable of the above may require a qualifying question: we would only, in perfect good humour, add an admired couplet from Goldsmith, which has now come to mind: —

> "Such is the patriot's boast where'er we roam,
> His first best country ever is at home."

Another of Mr. Kenrick's remarks should be quoted: — "The temperature of our climate, on our extensive Atlantic coast, differs considerably from those parts of Europe and of Africa [which are] in corresponding latitudes." Towards the close of his book, the author sketches a list of foreign fruits, and foreign trees, "which may be cultivated in the south-western and southern states to the lat. of 25°," and adds, "Most of these, however, may flourish in the middle states; and a small portion may succeed in the north-western and eastern states to the latitude of 43°."

The author dedicates his work "to the Hon. John Lowell, LL.D.," who has, during the twenty-five years past, been a distinguished promoter of gardening and farming in America; and in the course of that time has "extensively disseminated many valuable productions — the donations from T. A. Knight, Esq. [President of the London Horticultural Society], and from other sources."

FRANCE.

De Candolle, M. *Aug. Pyr.*: Physiologie Végétale, ou Exposition des Forces et des Fonctions Vitales de Végétaux, pour servir de suite à l'Organographie Végétale, et d'Introduction à la Botanique Géographique et Agricole. 8vo, 3 tom. Paris, 1832.

This excellent work, we hope, will soon be translated. In the mean time, we can recommend all gardeners whose masters take in the *Foreign Quarterly Review*, to borrow it, and peruse the very complete and excellent account of De Candolle's work, and epitome of its contents, given in No. xxii. for April, 1833. This review is attributed to one of our correspondents, Professor Henslow; and it is altogether a distinct, clear, and comprehensive view of all that relates to what is properly termed vegetable physiology, and its application to gardening and agriculture. Should the work not be translated soon, we will give an abstract of those parts of it which are more especially interesting to gardeners.

Jacquin, M., ainé, Membre de plusieurs Sociétés Horticulturales Françaises et Etrangères: Monographie complète du Melon; contenant la culture, la description et le classement de toutes les variétés de cette espèce, suivies de celles de la Pastèque à chair fondante, avec la figure de chacune dessinée et coloriée d'après Nature. Pp. 204, planches 33. Paris, 1832. 36 francs.

Sir, The sixth and concluding number of the above work having at length come to hand, I proceed, according to your desire, to render you some account of its contents. In so doing, I shall, of course, view it only in relation to this country. As regards France, it is, without doubt, an indispensable *vade mecum*; being, as a whole, the most accurate, most complete, and best digested treatise on the subject ever offered to the horticulturists of that kingdom. The author himself invites a comparison with his precursors, in giving also a list of the works antecedent to his own, and whose authors he accuses, "en masse," of plagiarism one from the other in succession. He has, however, omitted to cite the last edition, by no means a mere reprint, in 1828, of Calvel's work, heretofore the best: *Manuel de l'Amateur de Melons* (with figures), par Alexandre Martin (probably a fictitious name), Paris, 1827; this is a compilation throughout: and, lastly, *Les deux Mémoires sur les Cucurbitacées*, par M. Sageret; a work perfectly original, and containing details and results of numberless personal experiments, which ought not to have been omitted in the list, nor neglected in the composition of the present work. This octogenarian experimentalist, who has spent his life in his garden, and has now lost his eyesight in the service, commenced the culture of melons, with the view of comparing the different varieties, classing and enumerating them; intending to accompany their description by instructions for cultivation, drawn from a long and diversified experience: but, seduced by the more alluring study of the phenomena attendant on their hybridisation, he was prevented, ere the completion of his project, from further prosecuting it, by the failure of his sight. To give some notion of how difficult a task it was he had undertaken, I need only remark, that he confesses, in the second of his publications, which, together, contain as much matter as the work before us, "that he was still unable to give a complete treatise on the melon:" this, too, after an experience of six years, during which, with the advantage of his long practised habits of observation, he had applied himself closely to its culture, in some seasons fruiting from two to three hundred plants.*

M. Jacquin has divided his work into two parts, culture and description; and each of these is subdivided into sections and divisions. He sets out by deprecating the bad policy of gentlemen in refusing to their gardeners sufficient means to enable them successfully to cultivate the melon; promising to convince them, in the sequel, that they may procure them at less expense than if they resorted to the market: he then proceeds to point out the different kinds of fermenting matter that may be made available, enumerating a long list of heterogeneous substances, with instructions for preparing them for use. Division 2. treats of composts. In Division 3. are given minute directions for the construction of frames (which, it may be remarked, are, even in the north of France, employed to obtain early crops, only large bell and hand glasses being found sufficient in the later season). His estimate of a two-light frame, each sash 4 feet square, is 20 francs 10 centimes (about equal to 16*s*.), provided the glazing is done by the gardener. He would employ, for the boards of the frame, the planking of broken-up vessels. Some useful hints may, indeed, be gathered from this part, by those desirous of going the cheapest way to work.† Bell and hand glasses, and mats for shading and protection, are then fully described. Division 5., situation and arrangement of the melon ground. Section 2. commences with directions, still entering into the most minute details, for the formation of beds for frames and bell glasses, as likewise for those sunk in the ground, to be protected also by bell glasses, and showing the attentions necessary in the culture under each circumstance: and these are the only modes of applying the aid of artificial heat made mention of, no notice occurring throughout of pits heated either by fermentable matter, hot air, water, or steam.

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* M. Sageret is also the author of many occasional papers published in different *Annales*, and of a work entitled *Pomologie Physiologique*, which I would recommend to the notice of all who are interested in the amelioration of our fruits in general.

† Mr. Paxton gives 3*l*. 11*s*. 3*d*. as the price, in this country, of a new frame, with two lights, each 6 ft. by 3 ft.

In sowing in December, for early spring crops, he recommends that the use of pots be dispensed with, and the seeds placed at two or three inches' distance in the soil of a bed made for the purpose, to be afterwards transplanted when the second leaf has appeared, into pots, one plant in each, a fresh bed having been previously prepared to receive them. The plant he advises to be buried up to the cotyledons, a practice which is, or, if not, should be, generally adopted here; they are turned out of these pots without disturbing the roots, to be transplanted in their final destination. This mode of procedure is at least worthy of a trial: M. Jacquin attributes to it the merit of saving trouble, less liability to be affected by cold, and the avoidance of the matting and entangling of the roots: on the other hand, it may be questioned whether these advantages are not counterbalanced by the necessity for a more precise regulation of the heat of the bed, which, he says, should not exceed 20° to 25° (equal to about 78° to 88° of Fahrenheit); whereas, in pots, such care is needless, as they may be more or less immersed, according to the temperature of the soil. Pruning, setting the fruit, subsequent care, watering, preserving the seeds, with the best age to sow them considered, cuttings, &c., complete the 2d division, appertaining to early crops under frames.

The course of pruning which our author most approves of is this: — When the plant has four leaves, exclusive of the cotyledons, it is cut down to two: the branches proceeding from their axils, having just unfolded the third leaf, are again cut down to two; and, if these again fail to show fruit blossoms, the same is repeated, when they will invariably do so. The legitimate object of pruning, where early fruit is desired, consists in as speedily as possible establishing a certain degree of ramification sufficiently removed from the main stem to insure the emission of fruit blossoms, which, in the melon, usually occurs on the second from the parent stem, but always on the third, and that mode is preferable by which this may be effected with the least check to the plant. Tried by this test, M. Jacquin would appear to have adopted the happy medium; and his practice may be followed with safety. Of various modes that I have made trial of, I have found one nearly approaching this to be the most successful, though reserving a final judgment till I have concluded my experiments. I differ from him in his preference of seed three or more years old: I prefer it new, because the very vigour, which is usually complained of, will, by the aid of judicious pruning, enable the plants to bear fruit as soon as that from older seed, while the fruit itself is finer. At a future time I purpose to enlarge on this and other points, but at present it would be to diverge too far from my course, and would occupy your pages too largely.

The necessity of absolutely preventing the possible access of others, in order to preserve a valued variety unmixed, is not sufficiently insisted on; a fault which is common to every work on the subject. It is not enough, to comply with the admonition here given, to select a fruit of which to preserve the seed, that may happen to be the most perfect type of the variety; it is quite essential, also, that the blossom of that fruit should have been fecundated solely by the pollen of its own kind. To effect this, I would recommend, for general adoption, a practice I have myself found very useful, indeed indispensable, where many different sorts are grown at the same time; it is this: to cover with thin gauze, previously to their expansion, two, three, or more blossoms that appear healthy and likely to set. When in bloom, the anther of a male blossom, the petals being removed, should be applied to the stigma of the female, and allowed to remain there; the gauze should not be taken off until the flower is quite withered, and a peg with a label should be stuck near, to mark the fruit so impregnated. The gauze should, in like manner, be employed when it is desired to effect any particular hybridisation. It appears to me that M. Jacquin has attributed *that* to climate and season which is, in fact, due, in most instances, to intermixture by fecundation, when he ascribes to that cause the change from green to red flesh, the accession of netting, of odour, &c.

Division 3. is occupied by details on the care necessary for melons, under bell or hand glasses, planted on "couches sourdes;" that is, holes dug in the ground, filled with manure, and covered with good earth, called, I believe, by our gardeners, blind beds; and also the modes of procedure adopted at Honfleur, Lisieux, Lyons, and different parts of France, all described by practical cultivators resident in the various places. Division 4. culture entirely in the open air. Division 5. is a recapitulation of the most important points: contains observations on the grafting of the melon (a curious but troublesome process, which I have found unattended by any equivalent advantages), and concludes by an estimate of the cost of each melon, either of the spring or summer crop, when, as the reward of so much labour and attention, it at length, in all its beauty and fragrance, graces the Amphytrion's table.

Division 6. treats of the diseases incident to the melon plants, and of the insects to the ravages of which they are liable: this is followed by a succinct account of the culture of the water melon (*Cucúrbita Citrúllus*).

We now come to the second part of the work; and this is occupied by the history, classification, and description. To enter on the two former heads would lead me to an unwarrantable and, perhaps, uninteresting length: suffice it to say, that under the latter head are included numerous synonymes; the length of the fruit from which the figure that accompanies it was taken; the proportion of that figure to the model fruit; the form, colour, with every other minute particular; comparative qualities for the table; and merits, as regards precocity and fecundity. The list contains eighty-eight *different* varieties, with as many coloured figures, each one being accompanied by the representation of a slice of the fruit, to indicate the colour and thickness of the flesh and rind; an example is also given of the branch of an individual variety in each class, displaying the foliage, blossoms, and manner of growth. The figures, although not highly finished, are sufficiently so to admit the recognition of any variety by their aid; at least, so I have found, in those which I have previously known. In conclusion, I may state that these eighty-eight by no means include *all* the varieties known to us: of Persian there are not more than three or four; and I myself possess others far more widely different from any of these, than many of them are from each other.

The work is, throughout, founded on practical experience; and though containing little or nothing that is *strikingly* new to an English horticulturist, yet its details are so comprehensive and at the same time so minute, so clear and yet so free from useless repetitions, that, joined with the description of modes of culture which, however inapplicable to our climate, are yet interesting, and may afford useful hints for modifications of our own practice, and the plates, a feature wanting to every work on the subject in our language, render the work, I think, one not unworthy of the attention of those who are amateurs of the culture of the melon.

I have only farther to add, that, possessing seeds of all, (with a very few exceptions) of the varieties enumerated in M. Jacquin's work, they are, any of them, Sir, at your service. I am, Sir, yours, &c. — *J. C. K.*

Poiteau, A. (Rédacteur principal), et *Vilmorin*, M.: Le Bon Jardinier, Almanach pour l'Année 1833: contenant les principes généraux de culture; l'indication, mois par mois, des travaux à faire dans les jardins; la description, l'histoire, et la culture de toutes les plants potagères, économiques, ou employées dans les arts; de celles propres aux fourrages; des arbres fruitiers; des ognons et plantes à fleurs; des arbres, arbrisseaux, et arbustes, utiles ou d'agrément, disposés selon la méthode du Jardin du Roi: suivi d'un vocabulaire des termes de jardinage et de botanique; d'un jardin des plantes médicinales; d'un tableau des végétaux groupés d'après la place qu'ils doivent occuper dans les parterres, bosquets, &c.; et accompagné d'une *Revue Horticole,* avec quatre planches gravées. 8vo. 1088 pages. Paris, Audot, 1833.

The volume for this year, of this excellent work, is replete with valuable information; and, if the bulk and consequent price of the volume do not prevent its being generally purchased throughout France, it must there much contribute to diffuse scientific views of vegetable nature; for, to the credit of its compilers, it is not a book of mere empirical prescriptions, but one in which are given able abstracts of the "principes généraux du jardinage," and of the "notions d'anatomie et de physiologie végétale," &c. The editors speak in high terms of M. Noisette's *Jardin Fruitier,* and have derived much of the information which they furnish on various kinds of fruit from its pages.

The *Revue Horticole* was published by the same editors in the spring of 1829, and is continued at rather short intervals. Its office is to gather up and register information for the annual enrichment of *Le Bon Jardinier,* and to supply early information of new works on, and discoveries and improvements in, horticulture. The number of the *Revue Horticole,* which accompanies the present volume of *Le Bon Jardinier,* consists of sixty pages, which are occupied with notices of new works; new kinds of vegetables brought into, and old kinds discarded from, cultivation; newly invented garden tools; the meetings and proceedings of societies connected with horticulture, and other matter; all which, together, must render the *Revue Horticole* a welcome messenger to every one who has an affection for gardening.

Baumann, Charles A., and *N.:* Les Camellia de Bollwiller. Monographie dédiée à M. le Professeur A. P. De Candolle. In 4to parts; each containing twelve lithographed figures, coloured from nature by the authors. Bollwiller.

The second and third numbers of this work have been sent to us. The second is dated 1829, the third 1832; and from these dates we infer that the work is prosecuted as the leisure and facilities of the authors render convenient.

The camellias are gorgeously ornamental plants; and their large, thick, dark green, glossy leaves, and broad orbicular blossoms, usually composed of large petals full of a high colour, render them in an especial manner, as we presume, satisfactory objects from which to produce beautiful pictures. This result has been effected in the numbers before us, the lithographs of which have been executed by MM. Engelmann and Co., of Mulhouse, Haut Rhin. The descriptions are in German. Chandler and Booth's Illustrations of the Camell*ièæ*, so often noticed in this Magazine, form an equivalent work in the English language.

Various Contributors: L'Agronome, Journal Mensuel d'Agriculture, d'Horticulture, d'Economie Domestique, d'Economie Rurale, Forestière, &c. A cinq francs par an (franc de port), et un franc de plus pour les pays étrangers. Publié par le Comité central d'Agriculture Française, à Paris, et paraissant en un livraison de deux feuilles ou trente-deux pages grand in 8vo, le 15 de chaque mois, aux Bureaux du Comité central d'Agriculture, rue Choiseul. No. 2. 1833, Janvier, Février, Mars, Avril.

This monthly journal of agriculture, &c., was begun with the year, and in the four numbers which we have received are contained some very interesting and useful papers.

GERMANY.

Verhandlungen der k. k. Landwirthschafts-Gesellschaft in Wien, und Auffäke vermischten ökonomischen Inhaltes, &c. Transactions of the Imperial and Royal Agricultural Society of Vienna, &c. Vienna, 1832. New series. Vol. I. Part I. 8vo.

The preceding volumes of these Transactions were printed in 4to, and of course their circulation must have been very limited. The Society have now taken the wiser part of publishing them in 8vo, by which means their chances of doing good are necessarily greatly increased. The part before us is occupied chiefly with farming subjects, with the exception of a paper on Artesian wells, by Baron Jacquin; and some remarks on insects which attack trees, by M. Binder, one of the imperial foresters. Beet-root sugar, ryegrass, draining, and various extracts from Mathieu de Dombâsle's works, fill up the remainder.

MISCELLANEOUS INTELLIGENCE.

Art. I. *Floricultural and Botanical Notices of new Plants, and of old Plants of Interest, supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; each monthly Number containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; each monthly Number containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by John Lindley, F.R.S., Professor of Botany in the London University.

Sweet's British Flower-Garden; each monthly Number containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Librarian to the Linnæan Society.

Loddiges's Botanical Cabinet; each monthly Number containing ten plates; 5*s.* coloured, 2*s.* 6*d.* partly coloured. Edited by Messrs. Loddiges.

Dicotyledonous Polypetalous Plants.

III. R*anunculàceæ* § *spùriæ.*

1641. *HELLE'BORUS* 14659.
vérnàlis *D. Don* spring-*flowering* ♃ △ or ⅓ f W Austria 1596. D co Sw.fl.gar.2.s.186

"Of the three varieties of the Christmas rose, which we have observed in the gardens, the one now figured is, we think, entitled to the preference, as being less encumbered by foliage, and having the blossoms at least a third larger, and of a clearer colour; it flowers six or eight weeks later than the common kind," and farther differs in the form of the segments of its leaves. Drawn from the botanic garden, Chelsea. (*British Flower-Garden,* April.)

X. F*umariàceæ.*

2047. CORYDA'LIS.
18187*b* lòngiflòra *Pers.* long-flowered ⁂ ♃ or ⅓ ap.my Pa.Ro Altaic mtns. 1832. O p l Bot. mag. 3230

Received from Berlin, in 1832, at the Edinburgh botanic garden; whence it is to be hoped this pretty addition to hardy spring-flowering plants will soon be distributed to other gardens. In general appearance it resembles a good deal the common yet lovely *Corydàlis* bulbòsa. (*Bot. Mag.,* April.)

XLVII. *Onagràriæ* § *Onàgreæ.*

1185. CLA'RK*IA.*
10047*a* élegans *Doug.* elegant ○ pr 2 jl.o Ro.P California 1832. S a.l Bot. reg. 1575

This is very distinct from the Clárk*ia* pulchélla, and much less ornamental. It is, however, sufficiently pretty and interesting to be eligible to the gardens of all those who have pleasure in observing every instance of the rich diversity of form and hue which obtains in the vegetable world; but, by those who only regard plants in proportion to their capability of supplying rich masses of gaudy colouring, it will not be esteemed. C. élegans "was raised last year in the garden of the Horticultural Society, and blossomed in the open air from July to October." (*Bot. Reg.,* April.) We saw part of a bed of it there in flower in September, 1832.

LI. Loàseæ.

2193. *LOA'SA.*
álba *D. Don* white-*flowered* ○ or 1 jl.o W Chile 1831. S co Sw.fl.gar.2.s.192

"This pretty species of *Loàsa* was introduced by Mr. Hugh Cuming. It is of easy culture, and will be found to thrive luxuriantly in the open border during summer, continuing to send forth its showy blossoms for several months in succession." (*The British Flower-Garden*, May.)

LXIV. Santalàceæ. *Sántalum* álbum, the sandal-wood tree, is figured in the *Botanical Magazine* for May, t. 3235., where an interesting description of the tree, and of the manner in which sandal wood is prepared, is given. In the *Magazine of Natural History*, for April, 1832 (Vol. V. p. 255.), is a long communication on the same subject.

LXV. T*hymelèæ.*

87. PIMELE'A.
800*a* híspida *R. Br.* hispid-*flwd.* ■ ⊔ el 2 jn Bh S.W. N. Holl. 1830. C s.p Bot. reg. 1578

A very elegant ornament of the green-house, raised by Mr. Knight from Mr. Baxter's rich collection of seeds; we saw it in bloom at Mr. Knight's last year. "It is superior in beauty to P. ròsea, from which it is readily known by its broader leaves, larger flower heads, and especially by the long stiffish hairs that close the base of the calyx [corolla, as some would call it] densely, and apex sparingly, so as to give the flowers the aspect of delicate feathers. These hairs are long, uninterrupted, very transparent tubes, with a considerable number of minute particles within their cavity; they are doubtless extremely well adapted to show distinctly that curious motion in the fluids of plants which forms so singular a species of circulation in their system, and which seems to be universal in hairs, so long as they are alive." (*Bot. Reg.*, April.)

There is no difficulty either in cultivating this species, or in striking it from cuttings, if attention be paid to the following circumstances: —

[*Hints by Dr. Lindley on the Culture of Australian Plants.*] "All plants from the southern coast of New Holland, or from Van Diemen's Land, naturally enjoy a climate which in the winter season is about as cold as the winters of the south of France: they are found very much in dry exposed situations; and many of them, especially the pimeleas, are physically incapable of enduring cold and moisture together, although the former by itself, if above a certain amount, is not prejudicial to them. They, therefore, should be kept in winter in a cool airy place, where a perfect command of ventilation is possessed; and the temperature should not be allowed to rise much above 40° or 45° in the winter months. Upon this plan Mr. Knight manages the young plants obtained from the collections formed by Mr. Baxter, and with such success that no doubt can be entertained of its excellence."

†29126. sylvéstris *R. Br.* wood ■ ⊔ el 2 jn Bh N. Holl. 1830. C l.p Bot. reg. 1582

"A very pretty green-house species, easily increased by cuttings. Figured from the nursery of Mr. Knight, Chelsea, who raised it from seeds collected by Mr. Baxter. This species has a smooth perianth, and is less delicate and difficult to preserve in health and growth than some species. (*Bot. Reg.*, May.)

LXXIII. R*osàceæ* § *Potentílleæ.*

1528. POTENTI'LLA.
13645*a* glandulòsa *Lindl.* glandulose ♃ △ cu 1 au Y California 1830? D co Bot. reg. 1583

A hardy perennial species, lately received from Mr. Douglas: it is easily increased by the division of its roots. It is botanically allied to P. viscòsa. (*Bot. Reg.*, May.)

LXXV. A*mygdàleæ.*

1499. *PE'RSICA* (*Amýgdalus Pérsica L.*) 12846 vulgàris *Mil.*
4. álba *Lindl.* white ■ or ♄ ap.my W ... ... B l Bot. reg. 1586

"The white peach is a hardy ornamental shrub, with the habit of an almond. Its fruit has little merit." (*Bot. Reg.*, May, where are presented some lengthened and relevant remarks on the causes of the variations in colour, which plants not rarely exhibit.)

LXXVII. *Leguminòsæ* § Sophòreæ.

1251. GOMPHOLO'BIUM.
10527*a* venulòsum *Lindl.* veiny-*lvd.* ♣ ⊔ or 1½ jl.au Y S. of N. Holl. 1830. C s.p Bot. reg. 1574

This is a delicate little shrub, raised by Mr. Knight, of the King's Road, from seeds collected by Mr. Baxter. The rich yellow blossoms appear to be produced singly at the tip of as many branches; each blossom in outline is as large as a shilling. The south of New Holland seems to abound as much in Gompholòbia as the south of Europe in *Lá*thyri, for almost every new collection yields additional species of the genus. (*Bot. Reg.* April.)

1262. PULTENÆ'*A.*
10591*a* rosmarinifòlia *Lindl.* Rosemary-lvd. ♣ ⊔ or 2 ap.jn Y N. Holl. 1824. C s.lp Bot. reg. 1584
No. 10606. of *Hort. Brit.*, p. 164. It is closely allied to P. stipulàris; as is also P. mucronàta, No. 29165.

A pretty species found on the south coast of New Holland by Mr. Baxter, and was raised in the Clapton Nursery (Messrs. Lowe and Co.), where the drawing for the figure published was made. (*Bot. Reg.*, May.)

Leguminòsæ § P*haseòleæ.*

1985. *LUPI'NUS.*
élegans *Hum. & Kth.* elegant ○ or 2 jn V.Ro Mexico 1831. S sl Bot. reg. 1581

"Of all the annual lupines this is by far the handsomest: it even rivals the best of the perennial species. It flowers in the open air, most abundantly, in June. Its seeds are ripened in tolerable quantity, and by them it is increased." (*Bot. Reg.*, May.)

Erythrìna velutìna *Lowe* is figured in the *Botanical Magazine* for April, t. 3227. It is a noble species, growing in Madeira, and not yet introduced to Britain; it is a tree about 30 ft. high, with a cylindrical straight trunk, 7 or 8 in. in diameter, unbranched, in the single individual observed, to the height of 12 ft. or more. Branches spreading, forming an irregular spreading head of fine densely clustered bright green leaves, which, in Madeira, are deciduous, and come out at the same time, but on different branches. The clusters of blossoms are a foot long, and numerously produced. Flowers very conspicuous, large and handsome, the standard from 1½ to 2 in. long and broad, and of the colour of red lead, approaching to vermilion. The plant is believed to have been imported into Madeira, where it is extremely rare.

Erythrìna poiánthes is figured in the *Botanical Magazine* for May, t. 3234. This splendidly blossomed Asiatic tree is "not an unfrequent inmate of the gardens of Madeira," where it is "a low-tree, 15 ft. to 20 ft. high, with the trunk and branches thick in proportion, the trunk being sometimes 4 ft. in circumference." The branchlets are tipped from April to June with a spike, finally a foot long, of flowers of a most brilliant vermilion scarlet colour, which are unaccompanied, for the most of the time, with a single leaf, and thus present a most singular and beautiful appearance. The leaves, when produced, are numerous, large, and handsome. "Besides the singularity and beauty of the various species of Erythrìna, the facility with which they are propagated is no small recommendation. Every branch, however rudely broken off and carelessly stuck in the ground, will readily take root and grow." (*Bot. Mag.*, May.)

Leguminòsæ § *Mimòseæ.*

2837. *A*CA'CIA 24645 decípiens.
2. præmórsa *Grah.* bitten-*lvd.* ♣ ⊔ or 3 mr.jn Y N. Holl 1830. C s.lp

Raised by Mr. Knight from seeds collected by Mr. Baxter. Dr. Graham, who received it from Mr. Knight in 1831, describes it in detail, in

Jameson's *Journal* for April, 1833, and cannot consider it more than a variety of *A.* decípiens, differing a little in the shape of its leaves, in its paler flowers, and other minuter points. " It flowered very freely in the green-house with the usual treatment of New Holland acacias."

CXIII. *Anacardiàceæ.*

2649. DUVAU'*A.*
latifòlia *Gill.* broad-lvd. ♀ ⊔ or 20 jn.jl Ysh Chile 1830. C l.p Bot. reg. 1580
depéndens γ *Hook. Bot. Mis.* 3. 176.

In this country an evergreen shrub, about as hardy as a myrtle; seeds of it are often imported from Chile. Its foliage is pleasing, and when bruised effuses copiously a strong odour of turpentine. For a notice of an interesting phenomenon which this species and the others of the genus display, see p. 377. (*Bot. Reg.*, May.)

DICOTYLEDONOUS MONOPETALOUS PLANTS.

CLXX. *Ericeæ § veræ.*

1173. *E*RI'CA.
9398*a* penicillàta *Sal.* pencilled ● ⊔ or 2 var. sea. Ro C. G. H. 1792. C s.p Bot. cab. 1918

Already in *Hort. Brit.*, as No. 9937., but without an indication of its affinity, or of a figure of it. Raised in 1792, afterwards lost for many years, but again raised from Cape seeds in 1829. " It flowers at various seasons. It is exceedingly difficult to strike by cuttings; consequently, if it does not ripen its seeds, which is very unlikely, will probably be soon again lost." (*Bot. Cab.*, April.)

CLXXI. *Epacrídeæ.*

504. E'PACRIS.
campanulàta *B. C.* bell-*flwd.* ● ⊔ or 3 f.mr Dp.Bh N. Holl. 1830. C s.p Bot. cab. 1925

" We raised this elegant plant from New Holland seeds in 1830. It flowered in February and March, 1833, and, we think, does not yield in beauty to any of this fine family." (*Bot. Cab.*, May.)

Acrótriche ovalifòlia is figured in Loddiges's *Botanical Cabinet* for May, t. 1930., where the following remark, and others, are offered on it: — " At first sight the flowers of this curious plant appear so minute as to excite little interest, but when we avail ourselves of the help of a magnifying glass, they are found to be exceedingly beautiful in the form and arrangement of their parts."

CLXXXVI. *Compósitæ § Vernon*iàceæ.

2329. *B*A'CCHARIS.
alàta (*H. ber.*) winged-*stemmed* ● ⊔ ou 5 d Pa.Y ... 1829. S l.p
The male sex.

" We received this plant, under the name we have adopted, from the Berlin garden, but without any statements of its native country. It flowered freely in the green-house in December, 1832, but is curious rather than ornamental." (*Dr. Graham* in *Jameson's Journal* for April, 1833.)

Compósitæ § Astèreæ.

STENA'CTIS. (" Apparently from *stenazō*, to sigh: if so, the application is unknown to us. Could the author [Cassini] of the name have had in view what his countrywomen call *couleur de soupir?*" — *Lindley*. Is it not rather from *stenē*, narrow, and *aktin*, a sunbeam; from the sun-like figure of the expanded capitulum, and its numerous rays being quite narrow? — *J. D.*]
speciòsa *Lindl.* showy-*flwd.* ♃ △ or 2 jl.o P California 1831. D co Bot. reg. 1577

Apparently a very estimable addition to the list of hardy, showy, freely growing perennial herbaceous plants, sent from California to the Horticultural Society by Mr. Douglas. According to the figure, each stem is terminated by about four stalked flowers (capitulums in botanic language), each the size of a crown piece, or nearly so, and consisting of an intensely yellow disk surrounded by about 120 long, narrow, purple rays, " It is very showy, and flowers from July to October. It increases freely by the parting its roots; and it also produces seeds abundantly. Although a perennial, it may also be treated as an annual; for seedlings flower early enough the very first year to ripen their seeds. It will grow in any common garden soil, and seems to require no care in its cultivation. A bed of it thickly planted is very pretty." (*Bot. Reg.*, April.)

CXC. *Cinchonà*ceæ. Lucùli*a* gratíssima is figured in the *Botanical Cabinet* for April, t. 1919. This shrub has fine large leaves, and these, with its large pink very fragrant blossoms, produced in rounded panicles, render it very beautiful and ornamental. "Our plant flowered in September. It is difficult of cultivation; the stove being too close for it, and the green-house too cold. It may be increased by cuttings or layers, and should be potted in loam and peat soil."

CXCI. *Córneæ.* Dec.

401*a* BENTHA'M*IA* Lindl. (*George Bentham*, Secretary of the London Horticultural Society.)
4. 1. Sp. 1.—
fragífera *Lindl.* strawberry-*fruited* ■ ... or 10 su Ysh E. Indies 1825. L co Bot. reg. 1579

A valuable addition to our collection of hardy shrubs. It is a very handsome evergreen, flowering in great profusion during summer, and producing an abundance of large globular reddish fruit in autumn. The leaves are from 2 in. to 3 in. long, 1 in. broad in their widest part, and tapered to each end. The flowers are terminal, congregated into globular heads, and surrounded by an involucre 2 in. across when expanded, and composed of four yellowish-coloured parts resembling petals. The flowers themselves are greenish, small, and inconspicuous. The fruit, when ripe, is of a reddish colour, a good deal resembling that of the mulberry, but exceeding it considerably in size. The flesh is yellowish white, rather insipid, but not unpleasant, although a little bitter to the taste. "The plant seems to flower extremely well in common garden soil, and may be increased with facility either by seeds or layers." This shrub flowered and fruited last year, for the first time in Europe, at the seat of Sir C. Lemon, Carclew, Cornwall, whose gardener, Mr. Booth, contributed the drawing and description published. The plant was first raised in 1825, in the garden of J. H. Tremayne, Esq., Heligan, Cornwall, from seed received from Mr. Tremayne's relation, Sir Anthony Buller, during his residence in the East Indies. Dr. Wallich has twice published this plant by the name of *C*órnus capitàta. Dr. Lindley remarks that "it differs essentially from *C*órnus both in flower and fruit. Whether or not *C*órnus flórida, which agrees with it in habit, is also a species of Benthàm*ia*, our materials do not enable us to determine." (*Bot. Reg.*, May.)

CXCVI. A*pocýneæ.*

535. WRI'GHT*IA*. [Bot. cab. 1929
pubéscens *B. C.* downy ■ □ cu 4? f.mr. Gsh.Y Indian Islands, N. Holl. ... C l.p

"This is a native of the Indian islands, and also of the tropical parts of New Holland. It is a small shrub, with loose branches, and requires the protection of the stove." (*Bot. Cab.*, May.)

CCXI. *Scrophulárinæ.* § *Anther-bearing stamens two.*

65. CALCEOLA'RIA 28695 Herbert*iàna.*
2 parviflòra *Lindl.* small-flwd. ⌴ or 2 my Y Valparaiso 1832. C p.s.l Bot. reg. 1576

A kind possessing some beauty, though less than others of the genus. "From the seeds brought home by Mr. Cuming the specimen was raised from which our figure was taken, in the garden of the Comte de Vandes, in May, 1832. It requires an open border in a dry sheltered place in the summer, and a well-ventilated green-house in winter." (*Bot. Reg.*, April.)

MONOCOTYLEDONOUS PLANTS.

CCXXXVIII. *Amaryllí*deæ.

HERMI'ON*E*. [Sw.fl.gar.2.s.191
aperticoròna *Haw.* spreading *orange*-crowned ɤ △ or 1 ap Y.O N. Africa ... O r.l

An ornamental kind of polyanthus narcissus, closely related to the

Hermìon*e* **cupulàris**, which is Mr. Haworth's name for the *soleil d'or* of the gardens. (*The British Flower-Garden*, May.)

Cobúrg*ia* **fúlva** (already noticed in our Vol. VIII. p. 350.) is figured in Curtis's *Bot. Mag.* for March, t. 322., where it is observed " that a temperature of 45° seems most favourable to its blossoming in perfection."

CCXXXIX. *Irídeæ.* **Ïris reticulàta** *Bieb.* is figured in Sweet's *British Flower-Garden* for May, t. 189., from the collection of Messrs. Whitley, Brames, and Milne, of the Fulham Nursery, " where it blossomed early in March last, and, we believe, it exists at present in no other collection." This rare, elegant, and comparatively diminutive species has four-cornered leaves like *I.* tuberòsa. (*The British Flower-Garden*, May.)

CCXL. *Orchídeæ* § Vándeæ.

2532. ZYGOPE'TALUM. [1923
stenochìlum *B. C.* narrow-lipped £ ◬ or ‡ o W.Y.spot Brazil 1828. D lt.potsh Bot. cab.

" We received this fine plant in 1828, from Mr. Warre, who discovered it, and sent it home from Brazil. The blossoms are of long duration, like those of the other species of this beautiful genus, which appear to be many, differing slightly from each other, but all very beautiful. (*Bot. Cab.*, May.)

2537. MAXILLA'RIA. [Bot. cab. 1914
punctàta *B. C.* spotted-*sepaled* £ ◬ fra ‡ n.d W.spot Brazil 1828? D lt. moss, potsh

" Its flowers possess a very delicate and agreeable fragrance. It should be potted in vegetable earth, with moss and pieces of broken pot intermixed." The flowers are pretty, their segments white, sprinkled with pink spots. (*Bot. Cab.*, April.)

Orchídeæ § *Epidéndreæ.*

2554. EPIDE'NDRUM (A. bulbòsa).
pygmæ'um *Hook.* pygmy £ ◬ cu ‡ ja G.W Brazil 1831. D p.r.w Bot. mag. 3233

Like every created object, interesting when examined; but this is not obviously ornamental. (*Bot. Mag.*, April.)

CCXLI. *Scitamíneæ.*

2. MARA'NT*A* 47 bicolor.
2 minor *B. C.* smaller £ ◬ or ‡ f.m. W S. America 1828? D r.l Bot. cab. 1924

" It is a neat little stove plant, not growing much more than 6 in. high. The leaves are very richly and beautifully tinted, and the simple flowers are produced in February and March. It should be potted in rich loam, and will increase freely by separating the roots." (*Bot. Cab.*, May.)

ART. II. *Retrospective Criticism.*

CORRECTIONS. — In p. 82. line 3. for " Part I." read " Part II." In p. 243. line 1. for " *S. B. W.*" read " *J. B. W.*"

The Lists of Plants in the Accounts of Provincial Nurseries to be supplied by the Parties possessing the Plants.— Sir, I think that these lists do not deserve a place in your valuable pages, on the ground of public usefulness, unless they contain plants that are rare, difficult to be procured, and unless all those enumerated are not only possessed by the party contributing the list, but possessed by them in sufficient quantity for sale. Such lists, too, in every case, would appear with a better face if they came directly and professedly from the interested party, as their so doing would cast the responsibility for their accuracy on this party. They should by no means be inserted on the doubtful authority of a borrowed name. It is even possible that in the list of rarer plants in the nursery of Messrs. R. Jeffries and Sons, Ipswich, inserted p. 102., that Messrs. R. Jeffries and Sons do not hold themselves responsible for it, as, by the signature, it stands forth as the production of Mr. Smith, who is gardener to the landlord of Messrs. R. Jeffries and Sons. In this case, however, I may venture my suspicion that Mr. Smith's name is insufficient to veil the real actor, Mr. Smith being a man not professing any acquaintance with plants, although a very creditable kitchen-gardener. In the wish, Sir, that these remarks may cause future lists to be restricted to public usefulness, and to be frankly authenticated by the name of the proprietor of the plants it enumerates, I remain, your constant subscriber, — *H. Laundy. Woodbridge Nursery, March* 3. 1833.

Letting of Land to Cottagers is the best Means of benefiting them and ourselves. — Sir, You and I think so much alike on the subject of cottage allotments, and the arguments in their favour appear so convincing, that it seems almost superfluous to add a word to what has already been so powerfully advanced in their support in the pages of this Magazine; and I only advert to the subject at this time to point out what I think is an error in the reasoning of a celebrated political economist of the present day. Miss Harriet Martineau, for whom and for whose writings I entertain very high respect, in No. x. of her *Illustrations of Political Economy*, has, I conceive, greatly overrated the advantages of emigration, and proportionally underrated those of home colonisation. Now, to say nothing of the inadequacy of the former as a means of relief to our surplus population, surely we cannot shut our eyes to the fact, that wherever the system of cottage allotments has been fairly and judiciously tried, it has been found productive of very great advantages, by inducing the labourer to draw the supplies for himself and family from the land, instead of from the poor-rates. I cannot appeal to a better authority on this matter than Mr. John Denson, who, in his valuable little treatise, *A Peasant's Voice to Landowners*, has presented us with a series of facts which no theory, however ingenious, can overcome or gainsay. I agree with Selim (Vol. VIII. p. 647.) that too large an extent of land may not be desirable; but just as much as the cottager and his family can cultivate without hampering themselves, must surely be an important acquisition. Grant them this, and there will be no necessity to banish them as useless lumber from the country. — *Samuel Taylor. Stoke Ferry, Norfolk, Jan.* 21. 1833.

Mr. Weeks's Boiler does not fur up; and a Notice of some Improvements by Mr. Weeks. — Sir, I beg to be allowed to point out an error in your Magazine, in p. 37., where you state my boiler to be liable to corrosion. It holds but ten gallons, and flows seven a minute: the rapid flow and quickness of circulation act more as a cleanser than otherwise; for instance, I had one fixed for a few months, partly as a steam-boiler; and I afterwards applied the same for a quick circulation of hot water to my hothouse. It had not been there long, before it threw up as much as a quart of the earthy particles of water which had before been deposited; and this gave it a thorough cleansing. I have also pulled my boilers to pieces after having been fixed six or nine months, and have found them cleaner, if possible, than on the day in which they were first made.

I also take the liberty of informing you, I have made some improvements: — 1st, by a half-circular trough, which surrounds the uppermost pipe, which is filled with water for keeping up a constant steam in houses; 2dly, by heating and letting in external air by means of a pipe at every six feet passing through the hot water down the standards, the bottom end going through the front wall to receive cold air, which is heated by passing up through the water; and the other end lets it into the house gently heated; and by this process the air will continually keep on in circulation.

I have likewise a plan of ventilating to cleanse the houses or pits from stagnant or foul air; first, by letting in the heated air, and then by means of a ventilator in any part of the wall, and an ascending tube fixed thereto on the outside, which will keep a continual circulation of air without opening of doors or lights.

Another improvement I have also made for heating of pine pits, frames, &c., without the aid of tan or hot dung, by means of a trough about 1 ft. 6 in. wide, more or less, as occasion may require, which may be made with bricks set in cement, with stone, or with any other material that will hold water. This trough is to lie under the pit, and a pipe is to pass through it to heat the water; and a common wood hurdle is to be placed over, about one foot off, with straw or leaves on the top, so that the heat and steam may pass through to the mould. I am, Sir, yours, &c. — *Edward Weeks. Horticultural Manufactory, King's Road, Chelsea, Nov.* 11. 1832.

Thoughts and Facts on the Effects and Principles of Pruning, by Mr. Howden. — Sir, Mr. Billington and you have "spun a mortal long yarn," about "ignorance in arboriculture, with hints for its removal," all seemingly directed against poor Howden. (p. 50—59.) Nine full pages! oh, my patience! and I would not give a fraction of a farthing for all his dry, musty, worthless palaver. Friend Taylor is wrong in supposing (p. 49.) that I am a disciple of the old school: I trust I have advanced at least one step higher than that of the new school. I properly appreciate the value of leaves, twigs, and branches; I should be sorry to deprive a tree of one of its leaves in summer, or to see them devoured by the locusts or caterpillars; I should be sorry to deprive the peacock of one feather of his gaudy train; but I should be more sorry to be such a ninny as to call the eyes of Argus the mouths, or heads, of Medusa. If the poor bird had not another mouth at the other extremity it would never get fat. The whole of Mr. Billington's nine pages, with quotations from better men than himself, only go to prove that to tear off a young leaf draws part of the bark with it, while a ripe leaf drops off at a joint! Pray, Sir, will not tearing out a young feather from a fowl tear the skin, and even draw blood? while, if left to nature, they will all drop off at a joint, the same as leaves: but when do the branches of a tree drop off at a joint? Answer. Never; and so the skilful pruner makes an artificial joint with his knife, hook, or chisel. Question. When does a branch rot and drop off from a tree, leaving part of its decayed stem in the stem of its mother? Answer. As soon as the higher branches meet, so as to exclude the sun and air; for, as few trees will live under the drip of others, so few branches will live under the drip of their younger brethren. Question. Then, what is the use of pruning, if trees, planted at proper distances, will prune themselves naturally? Answer. Very few deciduous trees will prune themselves, unless firs or evergreens are planted among them, by which they are both sheltered and drawn up straight. Then, to take away the firs, &c., at once, would expose them too suddenly to summer's heat and winter's cold, and they would become hidebound and stunted; but, by pruning the firs, the sun and air are let in among the trees, and the ground is warmed, and vegetation encouraged. Then, a plantation wholly of firs will grow better if planted 4 ft. apart than if planted 4 yds. apart, if so be that by pruning you admit the sun and air to warm the soil, and so invigorate the trees, that you do not need to fall any tree before it is fit for a 9 ft. rail; whereas, without pruning or thinning, it would be a mass of rubbish, like an unhoed crop of turnips, all rotting on the land; but 4 yds. being a proper distance for a timber tree of 100 cubic feet (as proved on the estates of the Duke of Athol), then the pruner has 2722 rails on his acre; of which he sells 2420 rails or poles, leaving 300 timber trees on his acre, which, in 72 years, it appears, are worth perhaps eight or ten pounds sterling each tree. Now, the pruning costs no more than 10*s*. per acre; and 2420 rails, at the very low price of 6*d.* per pair, is 1210*s.*, or 60*l.* 10*s.* per acre. The Duke of Athol has practised turning Scotch bullocks, or stotts, into his plantations, which may be very economical on the barren mountains of Scotland, where grass is scarce; but I prefer putting in 300 English oaks, elms, or Spanish chestnuts, so that when the larches have been felled, a fine young plantation of hard wood supplies their places. This result, however, partly depends on soil and situation. All soils are improved by producing a crop of trees, therefore all poor lands should be planted.

Now for the requisite quantity of leaves (viz. *mouths* to *feed*, and) to rear 100 cubic feet of timber. Twelve feet apart being found the proper distance, of course the branches can extend no farther than 6 ft. from the centre of the stem (for observe that all fir boughs proceed from the very centre of the stem, or first year's shoot, and increase in size towards the surface, till they rot, or are cut off). Then, as all branches will rot when excluded from the sun and air, and under the drip of others, it follows that they are no longer of use, but may be very detrimental to the timber, and who will not agree that they are better off than on? It therefore follows that the Duke of Athol's trees have no larger a top than an unpruned tree of 10 or 15 years' growth. So much for mighty heads and mouths. Then, Sir, if left to nature, deciduous trees will not prune themselves at all, nor form a bole fit to be seen. An oak, unless drawn up by other trees, will only assume the appearance of an apple tree, ay, even of a dwarf apple tree; but by pruning it may at least assume the appearance of a standard apple. Some eighteen years ago I planted an apple orchard with dwarfs and standards alternately; I have felled some of them this winter with stems 10 in. in diameter, though three fourths of their mouths were pruned off every year. I had one of the standards sawn into boards, which I intend to make a table of, as a keepsake; the centre being a beautiful picture of an Irish shillelah, which has turned brown; the outside is white as chalk, of fine clear timber. Had such a tree not been pruned in its youth, it would have been only like the dwarfs, only fit for firewood, and poor firewood too. We are sorry to lop or prune ornamental trees; but, when timber is the object desired, even the common laurel, and particularly the Portugal laurel, and the silver-striped holly, by thick planting and proper pruning, may be formed into timber trees. Many of the latter I assisted in felling, 30 years ago, at the Earl of Hopetoun's; many of them were full 18 in. in diameter, with nearly 20 ft. of clear clean stem: they were sawn into veneers, for the cabinet-makers, as the wood is much whiter than that of the common green holly.

Now for ignorance in arboriculture. What is the reason why we gardeners cut off half or two thirds of the leaf when inserting a bud into a stock? Why do we cut down a graft or scion to two or three eyes when inserting a graft? Why do we prefer raising grape vines from single eyes, instead of a long shoot? Why do we cut down vines and other plants to make them break out the stronger? Why do we use striking-glasses for tender cuttings, and even shade them from the sun? The answer of the would-be new school, will be, "It is all from ignorance. Gardeners have no time to study physiology; their masters and mistresses should study for them, and tell them how to practise; and the learned in divinity, law, and physic will assist with their college lore in illuminating the poor ignorant gardener, inasmuch as he is quite in the dark; for that the leaves, twigs, buds, and branches are the true sources of health and vigour." Well, well, Messieurs Collegians, you must have it all your own way: you can speak and write better than we poor gardeners can; but, I trust, most of us know how to sow, plant, bud and graft, prune and thin, so as to produce flowers, fruit, vegetables, ay, and timber trees too, as well as any of you. I have said before, that every thing the tree produces is the offspring of the tree; they bear not the tree, but the tree them; whether they are branches, leaves, flowers, or fruits, they send nothing back to their parent, and yet they are the most grateful progeny in nature. No animal ever returns the kindness of its parent: it is seldom seen that the chickens scratch for the old hen: but vegetables really are fed from their own offspring; I mean, from the rotten leaves: a tree actually devours its own offspring. Now, brother-gardeners, I appeal to you (for I will not appeal to those who style themselves the learned): have you not seen some of your vines break out very weakly in spring, yet by the end of summer the shoots are most luxuriant, with monstrous large leaves (famous mouths, say certain physiologists); all blood-suckers, say we, and they are hewn down, to be cast into the oven. And thus would I hew down all such long lumbering letters as that of Mr. Billington, to be put either into the oven or under the boiler.

P. S. I fear this will be thought a long lumbering letter, so you may hew it down and cast it where you please. — *John Howden. Heath House, Feb.* 24. 1833.

Sir, I feel as if again called upon to come to the scratch; for, although I wrote to you only a few weeks ago, I had then only once read over Mr. Billington's long communication (p. 50—59.), and wrote my reply right off hand, without any corrections; and I never retain duplicates. On again perusing Mr. Billington's letter, I am the more convinced of the truth of my doctrine; and, as we are both writing solely for the good of the public, our very opposite opinions should be fairly weighed in the balance by all who are desirous of proving all things, and holding fast that which is good. I am still determined to stand or fall by my bill; and, should I be cast off, like a withered leaf, I shall have the consolation of thinking that I have done my duty. Here, then, I take my stand; here I take my text: — We are all of the earth earthly: all food comes from the earth, either directly or indirectly; whether it be for the support of animal or vegetable life. Air, light, and heat are all absorbents: they take all, but return nothing but a shower of rain, which may wash and clean the leaves of a tree, and give moisture to its roots, which are indeed its only mouths. The vital air we breathe does not support us; but, on the contrary, it really exhausts us, if not supplied with more substantial food; witness Ann Moor, the famous fasting woman of Tutbury; or, on the other hand, a live toad in the heart of a tree, or in a solid block of marble. Heat, air, and light are the chief promoters of vegetation. Electricity also acts a conspicuous part. It is an established fact that heat expands and cold condenses all substances. It is heat that causes the buds of trees to swell; air causes them to expand, and light gives them colour and taste or flavour. This is not from their imbibing any thing from these elements, but from these elements abstracting certain fluids, leaving the grosser matter to form various shades, colours, and consistencies of the various species of vegetable productions. Heat, air, light, and cleanliness all promote the growth of both animals and vegetables: but we should be very wrong in saying that the skin of animals, or the leaves of vegetables, imbibed any nourishment from such sources. As well might we say that a dirty child derived nourishment from the soap and water it was washed with, or that a horse got nourishment out of the currycomb. The changes of atmospheric pressure have a wonderful effect on vegetation: if you take a withered shrivelled fruit of any kind — say an apple — and put it into a vessel to which an air-pump can be attached, and work the pump gradually, the fruit will as gradually swell to its original size and plump form. If such apple had been growing on a tree, the air so drawn out of it would have acted as a sucker-pump, and drawn up sap to supply the place of the exhausted air. On this principle the leaves of trees act as so many pumps to a tree; and the head or top of a tree acts as a single pump for the whole stem or trunk. Now, the sap being drawn all from the earth, is taken up in its compound state, consisting of carbon, oxygen, and hydrogen. The leaves discharge only the pure hydrogen, like distilled water, retaining only the carbon and oxygen, which form the timber, bark, and dry leaves: by an extra artificial heat, the oxygen may also all be discharged, leaving nothing but pure carbon. Were it not for atmospheric influence, there could be no leaves, and without leaves timber could only attain the consistence of roots of the same species; like potatoes sprouting in a dark cellar. Trees of rapid growth, such as the poplar, sycamore, and lime tree, have generally a large shaking leaf: these leaves, acting as so many pumps, on the principle of capillary attraction, encourage the growth of timber on a congenial soil; but on a poor soil they are a greater curse than a blessing: hence we see so many stunted oaks, and other single or hedgerow trees, with a head or crown a hundred yards in circumference, with scarcely ten feet of saleable timber in them. Such trees may be admired by people who are fond of "the picturesque," but to me they only appear like magnified gooseberry bushes. Mr. Main says, "the larger the head of a tree, the larger must be the trunk" [Vol. VIII. p. 306.]; and that "the arguments of such as I lie in a nutshell." Allow me to retaliate a little, and say, the arguments of all such as Mr. Main lie in a peppercorn. I am not a disciple of Mr. Lindley, nor would I pin my faith to the sleeve of any man, however high his titles, including F.L.S.; but I value the writings of Mr. Lindley very much; and the quotations of Mr. Billington serve to prove in a general way that my principles are correct. The very nectarine tree (p. 52.) in Mr. Billington's own garden proves this. The large bud, or graft, or top of this tree ought, on his principle, to have sent down nourishment to cause the plum stock or crab stock to have swelled as large as a pumpkin; instead of which, he finds it one third smaller than the part above, and no doubt far smaller than if it had only been supporting its natural progeny; but, like the weeping ash I alluded to (p. 53.), the foster-child is a blood-sucker: it acted the part of the young cuckoo in the titlark's nest; it gobbled up all the carbon, oxygen, and hydrogen for its mighty paunch. The plum stock was merely, like a grape vine cut at the wrong season, bleeding itself to death. The plum stock is a mere siphon or horseleech to draw in and give out; or, like the jackal, or lion's provider, it has to take up with the mere refuse or offal. I have only now to add, that should a branch of a tree offend thee, cut it off, and cast it from thee: it is only a little tree growing out of a large one. Heal over a wound as soon as possible; and, though the timber is not improved, the shape of the tree may be. Should your tree have too few branches, according to your taste, stick it all over with buds and grafts Should your tree be too old, and unsightly, and incorrigible, cut it clear off by the ground; and, if a reproductive tree, you may have four fine shoots from it; and, by planting four or five handsome young trees round it, you may have a clump of great beauty, instead of a single deformity, on the same space of land, — always remembering to train up a tree in the way it should go, and when it is old it will not depart from it. I am, dear Sir, yours in good earnest, — *John Howden. March* 31. 1833.

The Hoop-petticoat Narcissus (*Narcíssus Bulbocòdium* Bot. Mag. t. 88.; *Corbulària serótina* Haworth) is (in this part of the kingdom, at least) perfectly hardy and of free growth. (See Vol. VIII. p. 724., Vol. IX. p. 118. 242.) I have, as well as J. D. (Vol. VIII. p. 724.), seen it "thriving thoroughly" and "flowering satisfactorily" at the foot of a wall, where it was planted in light sandy loam. I have also seen it flowering beautifully, year after year, in a low cold situation, and very heavy wet soil. In the grounds of the present Botanic Garden, the soil of which is, for the most part, very light, many clusters were planted, in various situations, early last autumn, which are now growing strongly. If a little more attention were paid to this plant, and its seeds were sown, the moment they are ripe, in a sheltered situation, it might soon be rendered comparatively common. The seedlings will arrive at maturity in about three or four years. — *H. Turner. Botanic Garden, Bury St. Edmunds, April* 19. 1833.

It is impossible to effect the Cross-impregnation of the Cucumber (*Cùcumis satìvus* L.) *and the Melon* (C. *Mèlo* L.) *with each other.* — Sir, I had till now indulged the hope that I should not have had so soon again to trouble you on the subject of my present letter. The seeds, however, which Mr. Oliver was so kind as to send me (Vol. VIII. p. 612.), I have been unable to excite to germination. Their failure I regret, because therein I may in some measure lose a strong corroborating fact, which might have induced conviction in those who still doubt the position I have endeavoured to establish, viz., the impossibility of effecting, either by artificial or natural means, the fertilisation of the *Cùcumis* satìvus and *Cùcumis Mèlo*, or *vice versâ.* Immediately on examining the seeds sent, I felt certain of what would be the result of their cultivation, and this I mentioned in a letter to Mr. Oliver; stating my belief that it would eventually prove that the cross he had obtained was between the *C.* flexuòsus, or a variety thereof, and the *C. Mèlo*; confirming the truth of one of the conjectures I had thrown out in my last communication. The contorted appearance of the grains fully bears me out; some of them are nearly a semicircle, and all are more or less twisted: now, this is a distinctive character, never found in the species *C.* satìvus. I enclose you the few I have remaining, that you may judge between us: on breaking them, you will easily perceive they are unfitted for germination; due, no doubt, to their age, being from nine to eleven years old. No. 1. is the seed taken from what Mr. Oliver describes as a large cucumber, fit only for mangoes (doubtless this, previous to its coming into his possession, was a hybrid, between the *C.* flexuòsus, or snake cucumber, as it is commonly termed, and the melon, by which cross it had lost its snake-like form: if Mr. Oliver had examined the foliage and blossoms, he might have readily distinguished it from the common cucumber): the fruit that afforded the seeds now in question must, in its infant state, have been fecundated by the pollen of the melon, and it consequently produced the hybrid he mentions, intermediate between the two parents; the seed here, of course, remains unchanged, as that of the mango cucumber, and is the most contorted.

No. 2. was taken from the above first hybrid fruit, and now, provided no foreign fecundation have again taken place, is become permanent; and the seeds, being modified by the melon parent, are much less contorted. The product of this it was that was sent to the London Horticultural Society, and, from some unexplained cause, yielded no fertile grains; not, certainly, because a hybrid production; had that been the cause, it would have been evinced by such failure in the previous generation. Need I say more? I have, I think, clearly shown that Mr. Oliver's hybrid militates in no degree against my previous position. I have, in a former letter (Vol. IV. p. 383.), enumerated the *C.* flexuòsus as one of those congeners that admitted of reciprocal fecundation with the *C. Mèlo*, and in my mind it admits not of a shadow of doubt that, if Mr. Oliver's mango cucumber was not the *C.* flexuòsus, yet that it was some other than the *C.* satìvus. I enclose also, for your comparison, seeds of the *C.* flexuòsus, of three different hybrids between that and *C. Mèlo*, and also the "melon trompe" received from Vilmorin of Paris, which I also consider as a hybrid having the like origin: no one of them is worth cultivating.

I postpone till a future opportunity some farther remarks on the mutual fecundation of plants, and on the divisions and subdivisions at present adopted by botanists. Yours, &c. — *J. C. K. Levant Lodge.*

To the seeds of Cùcumis flexuòsus sent, the seeds from Mr. Oliver's mango cucumber (No. 1.) bear, in contortedness, colour, and in size, except that they are shorter and broader, close resemblance. The seeds (No. 2.) from the hybrid raised by Mr. Oliver, and described Vol. VIII. p. 611., bear an evident, but rather less close, resemblance to those of *C.* flexuòsus. On the seeds of the other kinds sent by J. C. K. it is not necessary to speak. — *J. D.*

Art. III. *Queries and Answers.*

What Quantity of the under-named Kinds of Work should a Workman perform in a Day? — Sir, I venture to ask for an article on the quantity of work which a moderately good carpenter, mason, ploughman, country workman in general, and labouring gardener ought to do in a day? — I do not mean fine work. How much sawing, for instance, or brick or rough stone walling? How much hedging, or ploughing, or ditching, or trenching, or turnip-hoeing, or cutting of coppice wood? How many sheep or cattle one man can attend? How much a team of oxen, or horses, ought to do in a day? Or how much a gardener should dig? Or how much garden belonging to a villa one man ought to be able to keep in order through the year? I am a young beginner, and am perfectly ignorant on these points, as I am sure thousands are; and I should be most delighted to find a list of two or three pages, in your next number, estimating the quantity of all sorts of such work as I might reasonably expect to have performed by a fair workman.

Movable Saw Mill. —The Duke of Athol, at Dunkeld, has established a sort of *movable saw mill* in his woods, which is of very cheap and substantial construction. Could you obtain the particulars, it would be extremely useful in many other parts of the country. No doubt, a letter from you to his grace, or to his manager in Scotland, would procure the necessary information, as every body must feel an anxious desire to forward your most useful labours. — *H. Johnson.*

Remarks contributive to an answer to one or two of Mr. Johnson's queries, but still not supplying, even to one or two of them, either a direct or full answer, will be found in Vol. IV. p. 447., Vol. V. p. 108. 728.—*J. D.*

Volumes in Dr. Lardner's Cyclopædia useful to Gardeners. — Sir, Permit me to recommend, through your Magazine, a few books, which I have found to contain more useful information on the subjects upon which they treat, in a small compass, than I have been able to procure from more voluminous reading; and which books or works would, in my younger days, if I could then have obtained them, have been of inestimable value to me. The books to which I allude are the scientific works in Dr. Lardner's *Cabinet Cyclopædia*, particularly the volumes on Mechanics, Hydrostatics and Pneumatics, Chemistry, and Heat and its Practical Application; which may be procured, in separate volumes, at 6*s.* each, in cloth. The volume on Chemistry, by M. Donovan, Esq., would answer the purpose of Mr. Taylor (Vol. VIII. p. 735.) more effectually than any other book I know; and would obviate the defect pointed out by Mr. Mallet (Vol. IX. p. 122.), that English popular works on chemistry are defective in one important point, viz., that of explaining the language which they speak. I would likewise recommend to gardeners, whose local situation will admit, to join mechanics' institutes, where very much information may be obtained; and, I believe, at an expense within the power of most young men desirous of improvement. I am, Sir, yours, &c. — *Richard Paterson, Gardener to F. W. Campbell, Esq. Birkfield Lodge, near Ipswich, Feb.* 15. 1833.

A Society at Guernsey for purchasing and circulating Books on the Art and Science of Horticulture. — A few months back, some amateur gardeners here, to promote their mutual amusement and instruction, formed themselves into a society for purchasing, and circulating among the members, books on the art and science of horticulture; and each member thereby obtains, for a small annual subscription, the perusal of a considerable number of books. Might not this plan be generally recommended to young gardeners, both amateur and professional, to their advantage ?—*A Member of the Guernsey Horticultural Book Society.*

Ten shillings and sixpence was the charge of the annual subscription to a mechanics' institute to which I once belonged (at Bury St. Edmunds, Suffolk): the advantages this sum procured were, the use of numerous volumes, and the hearing of occasional lectures on different subjects in science. The Ipswich Mechanics' Institute, of which Mr. Paterson is a distinguished member, is numerously supported; and rich in books and apparatus, and specimens of various objects; and lectures, and able ones too, are delivered at it, to the amount of twenty-two in a year, by volunteers among the members. I recollect seeing, in a last year's Ipswich newspaper, a report of an able lecture on the practice of pruning fruit trees, delivered by Mr. Paterson himself: the principles he recommended were chiefly those of Hayward. By a list of the lectures for the present year a friend has sent me, it appears that Mr. Paterson stands engaged to give one "on horticulture," on Oct. 28. Mr. Woollard, too, is to give one on the "history of horticulture," on March 18. Among the remaining lectures, there are two to be given on "natural history," by Wm. Batley, Esq.; and one on "botany," by Mr. Webster. — *J. D. March* 8. 1833.

Tests for detecting Oxide of Iron in Soils and Subsoils. — Sir, To your correspondent's enquiry, "What is the simplest test for detecting the oxide of iron in soils and subsoils ?" I beg to say, that I think the enquiry he wishes to make is, how can you most easily determine the proportion of oxide of iron existing in soils; for, as to merely detecting the existence of oxide of iron, there is, perhaps, not a soil or subsoil from John-o'-Groat's House to Lizard Point that does not contain it. For Mr. Taylor's purpose, it will be sufficient if he can determine pretty nearly the amount of metallic oxides in the soil he examines. For this purpose, let the soil be dissolved in diluted muriatic acid; or, if insoluble, fused previously with excess of carbonate of potass, and then dissolved. Solution of ferrocyanate of potass (or prussiate of potash of the druggists) will precipitate all the metals usually found in soils: and, if iron predominate, the precipitate will be blue; or white, if the iron is in a low state of oxidisement, but becoming blue on exposure to the air. If this precipitate be heated red hot, it will be decomposed, and the result will be the oxides contained in the soil. Mr. Taylor will, I am sure, not be offended when I say that the separation of these metallic oxides individually, either from the soil or from one another, requires more skill and manipulation than any one not versed in chemical operations is likely to possess; for which reason I have confined myself to giving the foregoing simple (and, to a chemist, clumsy) mode of answering Mr. Taylor's question. I believe it is generally conceived that canker is caused by the roots of trees so affected getting into the subsoil; and I believe Mr. Taylor is quite right in supposing that the oxide of iron is the cause of it: but not immediately, as it appears to me the proximate cause is the total want of minutely divided and decayed vegetable matter which is found in such subsoils. Certain it is that trees will thrive well in soils that contain an enormous quantity of iron, provided there be also a good supply of vegetable matter. — *Robert Mallet.* 94, *Capel Street, Dublin, Dec.* 17. 1832.

Seeds. — M. Petersen mentions, in a communication respecting the Copenhagen botanic garden (Vol. IV. p. 200.), that, of 1800 different seeds sent from Denmark to Calcutta in 1820, 1400 vegetated in 4 days: whereas, of those sent from thence to Europe, almost all perished before arrival. It would be very desirable if M. Petersen could state what precautions were taken in packing, in both instances, and, if possible, in what part of the ship the packages were placed. Can any of your readers state whether instances occur of seeds having been packed in boxes made of cork, surrounded by flannel, and the result? I suggest this method, believing that uniformity of temperature is of the utmost importance in the preservation of vegetable life.—*Charles M. W——. London, Feb.* 12. 1833.

Schinus Mólle, *Fragments of its live Leaves exhibit chemical Phenomena.* — A curious phenomenon may be observed by breaking a leafstalk of *S*chìnus *Mólle* into pieces, and putting them in water. As the divisions float on the water, the sap that exudes from their lower ends seems to be changed into a kind of gas, which is evolved at intervals of a few seconds, and, as it streams along the surface of the water, it separates into numerous little starlike figures, tinted with faint red and blue. These are extinguished almost in an instant; but, after the evolutions from the leafstalk have apparently ceased, other little stars suddenly appear on the surface, several inches distant from each other, and in places where no trace of the former ones is visible on the water. Perhaps some of your chemical readers will explain this phenomenon. — *J. B. W. Jan.* 1. 1833.

As the phenomenon was once shown to me by a gentleman in Suffolk, Robert Bevan, Esq., the broken portions of the leaves moved about, and changed places with each other, as dancers do. Mr. Bevan remarked, that their motions had been aptly compared to a fleet of ships employed in manœuvring. — *J. D.*

The above has stood in type two months. The delay admits the following most welcome contribution to an answer to J. B. W.'s query, by Dr. Lindley, given in his description of Duvaúa latifòlia (the duvauas were formerly called species of *S*chìnus) in the *Botanical Register* for May, t. 1580. " A pretty phenomenon is exhibited by the leaves when thrown into water: after lying a short time, they will be found to start and jump as if they were alive, while at the instant of each start a jet of oily matter is discharged into the water. This circumstance appears to be owing to some peculiar irritability of the parenchyma of the leaves, which, when acted upon by water, causes the turpentine sacs, that abound in the leaves, to empty themselves with violence; and the movements of the leaves may be ascribed to the recoil produced by the discharge. Thus we have in every leaf a sort of vegetable battery, which will keep up its fire until the stock of ammunition is expended."

Gardènia radicans: by what Means can it be induced to grow healthily, and blossom freely and finely? — I hope some cultivator, who can at his or her pleasure produce both these results on this lovely plant, will teach all of us henceforth how to do the same; for, at almost all the places I call at, I see only sickly plants of it, and these barren of blossoms. — *R. T.*

I know a cultivator who, fifteen years ago (I was then a lad in his employ), grew and bloomed the plant, satisfactorily; and, if I remember rightly, thus: cuttings of the tips of the branches of plants that had flowered were, early in the autumn, struck in heath mould and white sand, under bell-glasses, in a stove I think, and, when so struck, each transplanted into a small sixty, in soil two thirds heath mould, one third loam, and kept through the winter in a stove. These plants were, in early spring, transferred to the first hotbed that was ready, and grown vigorously in a high, moist temperature, where each miniature, glossy green, lance-leaved bush was surmounted by a gorgeous crown of white, formed by one, and sometimes two of the well known, large, snow-hued, exquisitely fragrant flowers. — *J. D.*

Extirpating Daisy Plants from Turf. — Sir, I had hoped to see, before this, an answer to a query proposed by J. (Vol. VI. p. 615.), respecting a remedy for destroying daisies; but, as no one has attempted it, I shall endeavour to lay before your readers the only method I am acquainted with. In the month of March, let the turf be pared off to the thickness of about an inch, and, when dry enough, let it be thrown in heaps, and burnt: afterwards let the ashes be thrown regularly over the surface; then procure some fresh grass seeds, and, having sown them, let them be well raked in; then, if any daisies appear, they may be taken out with a spud, as you suggested: but to talk of destroying them by this means, in such a case as that mentioned by your correspondent, reminds me of a plan I once read of (I think) in the *Farmer's Journal*, to destroy ants, which was not only sure to effect their destruction, but also to find employment for all the poor people in the parish; a thing very desirable at the present time, as labourers are so very plentiful. As near as I can recollect, it was this: set as many persons on as you can procure, even if they have only one hand; let them sit down by the side of the hillock, and catch the little insects as they come up; let them be paid by the thousand, and appoint some of the most honest among them as overseers, in order that they may not cheat in the number. To return to the daisies, if the piece of turf be small, it may be removed, and some that is free from daisies laid down in its stead. It may not be amiss here to mention the cause of so many daisies being often seen. It is usually occasioned by gentlemen not allowing a sufficient number of men to mow the grass before the daisies go to seed; for, if a few only remain to drop their seeds, they will soon spread, and spring up all over the lawn; and, as they also propagate by the root, a small plant soon becomes a large bunch. The truth of this observation may be seen, by noticing a single plant by the side of a walk, if left undisturbed; when the parent and offspring will show themselves like a hen with her chickens all round her. — *O.*

In cultivating Carnations, is any injury likely to accrue to them from using iron stakes to support their flower-stems? That is, as iron is admitted to act injuriously on the physiological system of plants, which imbibe a portion of its properties through their roots; has any one witnessed an observable injury produced on plants of carnations, from iron stakes designed to support their flower stems fixed in the soil about their roots? — *R. H. Cambridge, March*, 1833.

Information asked on cultivating and fruiting the Mangosteen (*Garcínia* Mangostàna *L.*). — Sir, In Vol. II. p. 223., M. Soulange Bodin mentions that the mangosteen had fruited in a stove of M. Boursault's; and in Vol. IX. p. 150. you mention that, among the rarities contained in one of the stoves of that gentleman, there was Garcínia *Mangostàna*. Now, I wish to know whether, or not the plant has ever produced its fruit again? whether or not it did so in tolerable plenty? and whether its treatment was at all peculiar? Was or was not the plant trained on a trellis, and what was its height? — *J. B. May* 6. 1833.

We hope our friends in France will supply to our correspondent, who is attempting the culture of the mangosteen in Britain, all the information in their possession. — *Cond.*

What are the best Methods of raising Salads in the Winter, and Mushrooms all the Year? — Sir, Could any correspondent do a greater service to English gardeners, than communicating, for their use, the best descriptions of the French mode of raising salads in the winter, and mushrooms through the whole year? We have no good work, or even hints on these subjects that are of the least use to us. Again, you seem to think that they have two varieties of mushrooms; one whitish yellow, the other delicate white. Spawn of each could easily be introduced: and, in the neighbourhood of Bath, and probably many other places in England, mushrooms may be raised in old stone quarries under ground.

In fact, on raising mushrooms, or winter salads, we know just nothing: and I hope that you will collect and publish every information on these subjects, and take away this reproach from British gardeners. Perhaps, with a little instruction, we might do much with our cellars; at all events, we ought to try. Yours, &c. — *George Wilkinson, Gardener to J. L., Esq.*

In what Degree are the Growth, Welfare, and Permanence of the Western Plane Tree (*Plátanus occidentàlis* L.), *and of the Eastern Plane Tree* (*Plátanus orientàlis* L.), *affected by the various Climates and Soils of Britain, and by the Mode or Modes of propagating these Trees practised in the British Nurseries?* — Sir, Some twenty years ago, or more, the occidental plane tree (*P*látanus occidentàlis *L.*) received a check, which some attributed to a late frost that happened after the trees had begun to shoot, while others considered it to be a blast: but, whatever was the cause, the result was such as to irretrievably injure the greater part of this ornamental tree throughout the western counties. Many fine specimens, from fifty to sixty feet in height, in full vigour, came under my observation, which, after the circumstance took place, began, as if death-stricken, to decline, and in the course of two or three years their bark began to fall off, and, thus looking so miserable, they were with reluctance taken down. After this some young trees were procured from the nursery; but they by no means answered my expectations, as most of the young shoots died back every winter, exactly similar to those on the old trees after they had received the injury. In consequence of this, I turned my attention to the oriental plane (*P*látanus orientàlis *L.*), of which some fine young trees are now making progress on the site where the others stood. I am inclined to think that the failure of the young occidental planes was owing to their having been layers from stools that had been more or less injured by the same cause which proved so injurious to the old trees, although perhaps in a less degree.

I do not recollect seeing any thing in the pages of your Magazine in allusion to the above subject. Perhaps some one of your intelligent correspondents may feel inclined to take it up, so as to give a satisfactory evidence of the real cause which deprived so many gentlemen's seats in the west of a part of their proudest ornaments; and also to throw out some hints on the propriety of endeavouring to reinstate this favourite tree, with the chance of success, &c.; so that the succeeding generation in those parts may enjoy the sight of it in all its beauty; as many gentlemen, since what has happened, are unwilling to give it another trial.

I am not aware how far north or south this mischief extended. On referring to your Vol. III. p. 364., under the head of "Calls at Suburban Gardens," I perceive, when that article was written, that there were trees of this kind, from sixty to eighty feet nigh, at Sion House and in Chelsea Garden. Your calls at these places were made many years after the injury that happened in the west; consequently, it could not have been universal. *T. Rutger. Shortgrove, Essex, Jan.* 1833.

A fine Cork Tree (*Quércus* S*ùber* L.), *near Woodford, Suffolk.* — In the *Newcastle Courant* of October 20. 1832, it is stated, that, at a meeting, on Oct. 15. 1832, of the Natural History Society in that town, was presented, besides other matters, a fine piece of the wood of the cork tree (Quércus *S*ùber), grown near Woodford, in Suffolk. Out of whose garden, or off whose estate, could this be derived? Perhaps some Suffolcian will oblige us by telling? The specimens of cork tree in Britain capable of supplying "a fine piece of wood" are so very few, that we are anxious to register a notice of every one of them. — *J. D.*

The Leaves of Oak Trees much consumed and injured by the countless Caterpillars of the small pea-green Moth (*Tórtrix viridàna*). — In Vol. V. p. 610. is described one instance: allow me to add another. The oak woods in the Beulah grounds at Norwood have, for the last three years, suffered much from the small caterpillars of this insect; and, besides that the beauty of the foliage has not been recovered until past midsummer, the growth of the oaks has been, of course, greatly retarded. I should be happy to learn a preventive of the deeds of these depredators. — *J. D. Smith. Beulah Spa, Norwood, Jan.* 9. 1833.

Other instances of the ravages effected by Tórtrix viridàna, while in its caterpillar state, will be found described in the *Magazine of Natural History*, vol. v. p. 669., and in the number for July, 1833. — *J. D.*

Farm Horses fed on steeped Barley. (Vol. VIII. p. 613.) — Sir, I venture to acquaint X Y (Vol. VIII. p. 613.) with what I know respecting the steeping of barley for agricultural horses. It is merely to steep it 48 hours in a close-wrought wicker basket, fixed into a cask of water, for the convenience of draining it when taken out. It is then laid on the floor to sprout, where it requires some little care. The kernels should be examined by opening them; and if the nib of the sprout is half-way up, it is then ready to use; if suffered to grow through the kernel, then the saccharine matter will be exhausted, and the nutritious part lost. No more should be steeped at one time than is used at this state of vegetation. I never heard of more than one conviction and fine for the practice, which was by the magistrates of Hempnall, near Norwich, three or four years since, when a person was fined 10*l.*, which was mitigated to 5*l.*; but whether the conviction was legal or not, I cannot say. The practice is very common, and horses fed upon it do well. — *Thomas Hitchen, Norwich. Oct.* 20. 1832.

The Malting of Maize or Indian Corn. — Any correspondent would very much oblige me by describing the best method of malting Indian corn, as practised in America or elsewhere. — *A Constant Reader.*

We hope some American reader, or European reader familiar with the American practice, will be kind enough to do this at sight. — *Cond.*

What Garden Syringe is the best, and the least liable to go out of order? — *Charles M. Willich.* 24. *Suffolk Street, Pall Mall, Feb.* 12. 1833.

Our opinion is that Read's, taken altogether, is the best; but we should be glad to hear the opinion of others who have had more experience. — *Cond.*

ART. IV. *Covent Garden Market.*

THE Capacity of Measures used in Covent Garden Market. — Information on this subject has been asked by B. Bevan, of Leighton, in Vol. VII. p. 255.; and by J. W. L., in Vol. VIII. p. 374. The former correspondent has at length investigated the subject for himself, and, in the *Mechanics' Magazine*, of May 18. 1833, has published the result of his investigation. "To obtain," he remarks, "this [required] information for myself and others, I purchased a new set of these measures of one of the principal venders in the market, and have ascertained their capacities, heaped measure, to be as follows: — The sieve contained 1644 cubic inches, or about half a bushel; the half sieve, 822 cubic inches, or about a peck; the quarter of a sieve, 362 cubic inches, or about a gallon: the largest punnet, 248 cubic inches; the second punnet, 228 cubic inches, or about a pottle; the third punnet, 90 cubic inches, or about a quart; the smallest punnet, 60 cubic inches, or about 1¼ pint. These dimensions show nearly the quantity sold under these denominations; the precise quantity will of course depend upon the manner of filling and heaping them."

What is the Quantity included in " a Bunch" of each Kind of Article sold by the Bunch in Covent Garden Market? — Mr. Bevan asks this question in these words: — " There are some articles usually sold by the bunch: if any of your London correspondents will but take the trouble to ascertain the medium weight of these bunches, much of the obscurity so long resting upon these matters will be removed. It would also be giving very useful information, if any person would publish an account of the weight, in pounds, of the quantities usually sold by the sieve, half sieve, and punnet." — *Cond.*

	From			To		
	£	s.	d.	£	s.	d.
The Cabbage Tribe.						
Cabbage, White, per dozen	0	0	6	0	1	0
Plants, or Coleworts, p. doz.	0	1	6	0	2	0
Legumes.						
Peas, per half sieve - -	3	10	0	0	0	0
Forced, per pottle -	0	5	0	0	10	0
Kidneybeans, forced, per hundred - -	0	2	6	0	0	0
Tubers and Roots.						
Potatoes - per ton	5	0	0	0	0	0
per cwt.	0	5	0	0	6	0
per bushel	0	2	6	0	3	0
Kidney, per bushel -	0	3	0	0	0	0
Scotch, per bushel -	0	2	6	0	3	0
New, per pound -	0	1	0	0	2	0
Jerusalem Artichokes, per half sieve - -	0	1	6	0	2	0
Turnips, White, per bunch	0	0	2	0	0	3
Carrots, per bunch:						
Old - - -	0	0	4	0	0	6
Young - - -	0	0	8	0	1	0
Horn - - -	0	1	0	0	0	0
Red Beet, per dozen -	0	1	0	0	1	6
Skirret, per bunch -	0	1	6	0	0	0
Scorzonera, per bundle -	0	1	0	0	1	3
Salsify, per bunch - -	0	1	0	0	1	3
Horseradish, per bundle -	0	2	6	0	4	0
Radishes:						
Red, per dozen hands (24 to 30 each) - -	0	0	8	0	0	0
White and Red Turnip, per bunch - -	0	0	1	0	0	2
The Spinach Tribe.						
Spinach per sieve -	0	1	0	0	1	6
per half sieve -	0	0	9	0	1	0
Sorrel, per half sieve -	0	1	0	0	0	0
The Onion Tribe.						
Onions, old, per bushel -	0	2	6	0	3	6
When green (Ciboules), per bunch -	0	0	3	0	0	0
Leeks, per dozen bunches	0	0	9	0	1	6
Garlic, per pound - -	0	0	8	0	0	0
Shallots, per pound - -	0	0	8	0	0	0
Asparaginous Plants, Salads, &c.						
Asparagus, large, per hund.	0	3	6	0	5	0
Middling - -	0	1	6	0	2	6
Small - - -	0	1	0	0	2	0
Lettuce, per score:						
Cos - - -	0	1	6	0	2	0
Cabbage - -	0	0	6	0	0	9
Celery, per bundle (12 to 15)	0	0	9	0	1	6
Small Salads per ½ sieve	0	2	0	0	0	0
per punnet	0	0	2	0	0	0
Watercress, per dozen small bunches - - - -	0	0	4	0	0	6
Burnet, per bunch -	0	0	3	0	0	0
Pot and Sweet Herbs.						
Tarragon, per dozen bunch.	0	4	0	0	0	0
Fennel, per dozen bunches	0	1	6	0	0	0
Thyme, per dozen bunches	0	2	0	0	0	0
Sage, per dozen bunches -	0	3	0	0	0	0
Mint, per dozen bunches -	0	2	6	0	0	0
Peppermint, dried, per doz. bunches - -	0	1	0	0	0	0
Marjoram, dried, per dozen bunches - -	0	1	0	0	0	0
Savory, dried, per doz. bun.	0	1	0	0	0	0
Basil, dried, per dozen bun.	0	1	3	0	0	0
Rosemary, dried, per dozen bunches - -	0	3	0	0	0	0
Lavender, dried, per dozen bunches - -	0	2	6	0	0	0
Tansy, dried, per doz. bun.	0	1	6	0	0	0
Stalks and Fruits for Tarts, Pickling, &c.						
Rhubarb Stalks, per bundle	0	0	6	0	1	6
Edible Fungi and Fuci.						
Mushrooms, per pottle -	0	0	9	0	0	0
Morels, dried, per pound -	0	12	0	0	0	0
Truffles, English, dried, per pound - - -	0	12	0	0	0	0
Fruits.						
Apples, per bushel:						
Nonpareil - -	1	10	0	0	0	0
Reinette grise - -	1	0	0	0	0	0
Baking, per bushel -	0	8	0	0	10	0
Pears, Dessert, Bon Chrétiens, per dozen -	0	4	0	0	0	0
Almonds, per peck -	0	6	0	0	0	0
Cherries, per pound -	0	15	0	1	0	0
Gooseberries per ½ sieve	0	6	0	0	9	0
per pottle	0	0	9	0	1	0
Strawberries, forced, per ounce - - -	0	0	4	0	0	10
Pine-apples, per pound -	0	8	0	0	16	0
Hot-house Grapes, per lb.	0	5	0	0	15	0
Cucumbers, Frame, p. brace	0	2	0	0	4	0
Oranges per dozen -	0	0	9	0	2	0
per hundred	0	3	6	0	14	0
Lemons per dozen -	0	0	9	0	2	0
per hundred	0	5	0	0	14	0
Sweet Almonds, per pound	0	2	6	0	0	0
Brazil Nuts, per bushel -	0	12	0	0	16	0
Spanish Nuts, per peck -	0	2	6	0	0	0
Barcelona, per peck -	0	5	0	0	0	0

Observations. — An intended absence from London obliges me to send this list somewhat earlier than usual, which I regret, as the lapse of a week or ten days, at this time of the year, makes a very material difference in the prices, as well as the supplies of very many articles usually found in our market. The supply of vegetables keeps gradually increasing as the season advances; but, from the continued lateness of the spring, owing to the coldness of the weather, and great prevalence of rain during the month of April, we have, as yet, found the demand rather better than usual. In speaking of asparagus (in the quotation as to price), that of the day is meant; as, very recently, within a week or ten days, four times the price has been obtained: but, as the supply will now be more regular, no great change, but a gradual decline in value, may be expected; peas are as yet very scarce; only two half sieves in the market, for which the price quoted has been obtained: in the course of the ensuing week a considerable alteration will take place, as several growers will have them ready to bring in that time; and, perhaps, in all the articles brought to our market, none is liable to so rapid a fall, owing to the article being one of very general demand, and equally general production. Rhubarb still maintains its value as an esculent, and may now be considered as an article of material importance to the cultivators, who keep increasing their growth, and improving the varieties. Sea-kale is also (earlier in the season) an article of very considerable consequence, and most extensively furnished, being, in many instances, now cultivated by the acre, instead of (as heretofore) in detached portions. French beans (of course, forced) have been plentiful, and moderate in price; but, like asparagus, will probably be worth more before the supplies from the open ground can be expected. Strawberries are at present abundant, and of excellent quality; the improved method of cultivating in houses, or pits by themselves, instead of placing them on the shelves of a stove, where they are at all times more or less shaded, and prevented from receiving an ample supply of light and air, enables the gardener to send them to market in much better condition. Pine-apples, of good size, are very scarce; smaller are more plentiful: but the supply is at present very limited. Grapes are more plentiful, and of excellent quality. No appearance of peaches or nectarines; nor any expected until early in June. A few cherries have been sent, and a few raspberries, but not in sufficient quantities to make them an article of any importance. It is generally reported that the wall-fruit has been injured by the cold rains in April. Most other fruits are spoken of favourably; but it is quite impossible to form any correct estimate at present. The stock of onions is now nearly exhausted, and those growers who have held them over are getting better prices: but the supplies are yet considerable. Potatoes have been furnished, as usual, from all parts of the coast in tolerable abundance; the prices continue moderate. — *G. C. May* 14. 1833.

ART. V. *Horticultural Society and Garden.*

MARCH 19. 1833. — *Read.* A communication on the Culture of the Potato, by T. A. Knight, Esq. It was announced from the chair that the 4th part of the first volume of the new series of the Society's *Transactions* would be ready for delivery on the first day of May.

Distributed. Scions of the golden Harvey and King of the pippins apples; and of the Flemish beauty, Nelis d'Hiver, and Beurré Bosc pears.

Exhibited. Dendròbium speciòsum, from the Rev. Mr. Huntley. Caméll*ia* Reevès*ii*, Rawes*iàna*, and two seedling kinds; and specimens of butter from cows fed on mangold wurzel, and on hay, from J. Allnutt, Esq. E′pacris purpuráscens, variábilis, impréssa; *E*rìca vérnix coccínea; Caméll*ia* concínna, rotundifòlia, eclipse, *a*lthææflòra, from Messrs. Chandler and Sons. Some lemons grown in Essex.

From the Garden of the Society. Azàlea índica phœnícea, índica álba, índica hýbrida; Caméll*ia* imbricàta, Colvíll*i*; Francísc*ea* Hope*àna*, Dracæ̀na strícta.

April 2. — *Read.* The Meteorological Journal kept in the Society's Garden through 1832.

Exhibitions at the Society's Garden. The Vice-President (Dr. Henderson) announced that a sufficient number of tickets had been subscribed for, to enable the Council to make the requisite preparations for the Exhibitions at the Garden in the months May, June, and July, and that the first Exhibition would take place on Saturday the 25th day of May. The show in May is to be for flowers, that in June for flowers, that in July for flowers and fruit. On each occasion, one or more large silver medals, and four or more Banksian medals will be awarded to those who exhibit the best productions. Messrs. Gunter are engaged to supply refreshments, at regulated prices, to the visiters. These exhibitions are in lieu of the fête which has hitherto annually been given.

Distributed. Scions of the Dutch mignonne, Beachamwell, and Irish peach apples; of the Marie Louise glout morceau pears.

Exhibited. Azàlea índica álba, sinénsis, from J. Horsley Palmer, Esq., his gardener being Seward Snow. Two brace of very fine cucumbers, from R. H. Cox, Esq., grown by his gardener, Mr. Weeding. *A*càcia dealbàta, grown in the open air near Winchester, in great perfection, from the Rev. T. Garnier. Ten kinds of Caméll*ia*, E'pacris nivàlis, Dillwýn*ia* *j*unipérina, from the Messrs. Chandler. Ears and straw of millet, raised in 1832; seeds and stalks of French cress, raised in 1832, from H. S. Matthews, Esq. A seedling *R*hododéndron, obtained from between *R.* arbòreum and *R.* catawbiénse, from Mr. H. Burn. A garden engine on an improved plan, from Mr. Read.

From the Society's Garden. A specimen of Oldaker's seedling pineapple, and a collection of flowers.

April 16. — *Read.* A paper on the Preservation of Peas for Winter Use, by Mr. Thomas Blake, F. H. S.

Exhibited. Azàlea índica phœnícea, from Mrs. Marryat. A cucumber, from J. Allnutt, Esq. A hoe, from Colonel Le Couteur, of Jersey. Specimens of hoes, from Lord Vernon. A noble plant of Phàius Tankervíll*iæ*, bearing seven spikes of flowers, from Mr. George Mills, gardener to Alexander Copeland, Esq. Cyrtopòdium Andersòn*ii*, 5 ft. high, from Richard Harrison, Esq.

From the Garden of the Society. Flowers: *Bérberis* glumàcea, fasciculàris, *A*quifòlium, and heterophýlla; *I'*ris tuberòsa, Erythrìna herbàcea, Gloxín*ia* cauléscens; Caméll*ia* reticulàta and speciòsa; *Ribes* sanguíneum, three varieties of; *R.* aúreum præ̀cox; Gesnèr*ia* Douglàs*ii*; *A*mýgdalus macrocárpa; Anomathèca cruénta; Justíc*ia* flavícoma, and *N*arcíssi.

Lecture. It was announced that the first Lecture on Botany applied to Horticulture would be given on the 24th instant.

May 1. 1833. — The Anniversary Meeting was held, and the Report of the Proceedings of the Society through the past year read, and officers elected for the year ensuing.

May 7. — *Read.* A paper on Rockworks in Botanic Gardens, by Professor Schranck.

Exhibited. From Mrs. Marryat, Caméll*ia* flórida, *N*arcíssi, *Tùlipa* Clusi*àna*, Wistàr*ia* Consequà*na*, *P*hlóx procúmbens, *A*nemòne stellàta *Dec.*, Bilbérg*ia* nudicaúlis, Calánthe *v*eratrifòlia. A garden syringe, from Mr. Read. An Enville pine-apple, from P. D. Cooke, Esq. *E*rìca aristàta màjor, from Mr. John Cornelius, Drayton Green. Sweeney nonpareils, from T. H. Parker, Esq. An unnamed kind of apple, from Mr. James Young. Magnòl*ia* grácilis and Soulange*àna*, and a collection of kinds of heart's-ease, from Mr. C. Brown. From Messrs. Chandler, *R*hododéndron fràgrans, and a variety of *R.* catawbiénse; Tríllium grandiflòrum, Chorózema Henchmánn*i*, and a variety of Chorózema, Brachysèma latifòlium, E'pacris paludòsa, Templetòn*ia* glaúca, Daviès*ia* longifòlia, Azàlea índica var. Smíth*ii*, *C*ýclamen *h*ederæfòlium.

From the Garden of the Society. Flowers: *Ribes* setòsum, spicàtum, lacústre, níveum, inèbrians, cèreum, irríguum triflòrum, divaricàtum, multiflòrum, aúreum sanguíneum, aúreum serótinum; *P*ỳrus spectábilis. *Bérberis* fasciculàris, rèpens; Fritillària pérsica màjor, pyrenaïca, double-blossomed cherry, double-blossomed furze, single-flowered and double-flowered tulips, Erythrìna herbàcea, Gesnèr*ia* bulbòsa; *H*ibíscus *l*iliiflòrus, *R*òsa sinénsis; Schizánthus pinnàtus var. hùmilis, *P*æòn*ia* *Moútan* *p*apaveràcea, *A*nagỳris índica; Magnòl*ia* Soulange*àna*, obovàta; *R*òsa Banks*iàna* lùtea, *S*cílla campanulàta, Wistàr*ia* Consequà*na*; *C*ýtisus ruthénicus, elongàtus; *S*piræ'a taúrica; Fothergíll*a* *a*lnifòlia obtùsa, Gárden*i*; *P*rùnus serrulàta, or double-flowered Chinese cherry; Caméll*ia* reticulàta; Cyprìpèdium spectábile, wild cherry from Russia, *P*ỳrus *p*runifòlia, Téllima grandiflòra, *R*ùbus spectábilis.

Art. VI. *Obituary.*

Died, at Elleray, near Ambleside, on the 20th of March last, *Mr. Alexander*, upwards of ten years gardener to Professor Wilson, at that place. Mr. Alexander was only in the 44th year of his age, and has left behind him a widow and several children, the care of whom will now devolve upon his eldest son; a very intelligent and estimable youth, who, we feel confident, will fulfil the arduous duties required of him under such circumstances, as well as the world will permit him.

Died, on the 4th of April, 1833, at the Haverstock Nursery (also called Eshcol Place), in the Hampstead Road, *Mr. Daniel Money*, proprietor of that nursery, aged 70 years. He had experienced a gradual declension from his general good health for only three months preceding his death, which was induced by natural decay. *Mr. Money* was a sensible, honest-hearted man, and the residence of these qualities within him was bespoken by a straightforward homeliness and heartiness of manner. He had devoted his whole life to gardening, and established the Haverstock Nursery, in which he cultivated a collection of the more generally desired shrubs and herbaceous plants; but distinguished himself by collecting, and propagating for sale, vines of all the superior kinds of grape. He possessed an intimate knowledge of the qualities and merits of most of the varieties worthy of notice, and gave his customers the benefit of this knowledge, by recommending to them none but the best kinds. Many can attest the truth of this assertion. *Mr. Money* named the Haverstock Nursery, Eshcol Place, in allusion to the brook "Eshcol," whence the spies of the Israelites brought the famous grapes spoken of in the book of Numbers, chap. xiii. verses 23. and 24.; and it is in allusion to this idea that the name Muscat Eshcollata is applied to his famous new grape, which was advertised in the *Gardener's Magazine* for December, 1831 (page 2. of the advertising sheet), and which will be found noticed in Vol. VII. p. 742, 743., as shown at meetings of the London Horticultural Society.

The business of the Haverstock Nursery is continued by Mrs. Money, the widow, and her grandson, Mr. Daniel Money.

THE

GARDENER'S MAGAZINE,

AUGUST, 1833.

ORIGINAL COMMUNICATIONS.

Art. I. *Notes and Reflections made during a Tour through Part of France and Germany, in the Autumn of the Year* 1828. By the Conductor.

(*Continued from* p. 269.)

The principal gardens of Bavaria are the property of the crown or the government, and are, for the most part, situated in the neighbourhood of Munich. We have before (Vol. IV. p. 491.) given an outline of our tour through the Duchy of Baden, by the romantic valley of Kinzigthal, across the Black Forest, through Donaueschingen (source of the Danube), Ehingen, Ulm, and Augsburg, to the Bavarian capital; and we shall here offer a few notices of the gardens which we visited, in respect to landscape-gardening, floriculture, horticulture, and arboriculture; concluding with a notice of the state of agriculture, rural architecture, and territorial and domestic improvement generally.

Landscape-gardening is more encouraged in Bavaria than it is in any other state of Germany. The first impulse given to this taste was by the laying out of the English garden of Munich, under the direction of Count Rumford, by Louis Sckell, in 1789. Previously to that period, Maximilian I. had a geometric garden planted in Munich in 1614; and, subsequently, Maximilian Joseph greatly enlarged Nymphenburg, added the English garden by Sckell, and formed an extensive botanical collection. The present king, Louis I., an author, a poet, and a great lover and encourager of the fine arts, is much more attached to building than to any other description of improvement; and, contrary, as we believe, to the wishes of the majority of the nation, has sunk immense sums in a massive palace in the Tuscan manner; in a glyptothek, or building for statues and sculptures; in a pinakothek, or building for pictures; and in a variety of other buildings of luxury, for himself, for his relations, or for public display. The only argument that can be urged in favour of these buildings is, that they are generally in exceedingly good taste.

The palace of Schleissheim is an immense Italian building, with Venetian chimney-tops, never entirely completed. The park and gardens are perfectly flat, and of great extent. Water, walls, terraces, and vases, which, with the palace, must have been erected at an enormous expense, were, in 1828, in a deplorable state of decay. The kitchen-garden forms part of one of the extensive government nurseries elsewhere described. The coach-houses and stable offices constitute the buildings of the Schleissheim agricultural establishment, under the direction of M. Schönleutner, in which pupils are instructed in all the departments of agriculture, both theoretically and practically.

The garden of the palace of Anspach contains twenty or thirty acres, laid out in the simplest form of the French manner, being intersected by walks, so as to throw it into square and parallelogram compartments, bordered by rows of trees. Some of these compartments are in turf, but the greater part are used as a royal nursery of fruit trees; the king of Bavaria being unquestionably the greatest nursery gardener in Europe. There is an orangery here, that has long been celebrated in Germany: it is about 300 ft. long, 30 ft. high, and 30 ft. wide: it contains 107 large orange trees in boxes, which were, in November, 1828, covered with fruit. The stems of some of these trees were upwards of a foot in diameter, and the heads from ten to twelve feet across. There were a few other common green-house plants, such as pomegranates, olives, myrtles, &c. In an adjoining green-house was a small collection of ordinary green-house plants, and there were pits and frames for forcing and protecting culinary vegetables. In travelling through a small kingdom, like that of Bavaria, it is impossible not to be struck by the circumstance, that every thing great and good, in the way of architecture and gardening, belongs to the king; and one cannot help feeling it to be singular, that a people who are at once poor and enlightened, should submit to the very heavy burden of taxes which are necessary to keep up these expensive establishments.

The palace and gardens of Nymphenburg are situated about four miles from Munich, on a perfectly flat surface, without any distant prospect, the country around being elevated table-land for several miles in every direction. There never was an English garden the merits of which might be more completely ascertained by the study of the plan. (*fig.* 99.) These gardens were laid out by Louis Sckell, and contain two of the finest jets of water in Germany. These jets are not supplied by elevated fountains, but by the pressure produced, in one case, by a machine driven by water, and in another, by a steam engine: both are the invention of the Chevalier Baader, the chief of the engineers of the mines of Bavaria. The water is forced into strong hemispherical air-vessels by pumps, driven by undershot water-wheels: these air-vessels are connected by tubes, which unite in a main, which supplies a jet, shown in the ground plan (*fig.* 99.), and in the view. (*fig.* 104.) Air is drawn in along with the water; and, when it escapes by the jet, it makes a loud crackling noise. The use of the air-vessels, however, is not to supply this air; but, by the powerful compression the air in them undergoes, to afford a compensating resistance to the water, at any moment when the power of the pumps diminishes or becomes irregular. These vessels, in short, serve the same purpose in hydraulics as the fly-wheel does in mechanics. Several animals were at one time kept in this garden, but at present there are only some beavers.

When the natural disadvantages of Nymphenburg, with regard to situation and climate, are considered, it must be allowed to be one of the greatest and the most successful gardening efforts in Germany. The trees, it will be seen from the plan, are beautifully massed and grouped; and, at the same time, breadth of lawn is preserved and depth of view maintained. The straight walks, on both sides of the central canal, are lined with large orange trees in the summer season. As compared with English gardens, however, of the same extent and style, the gardens at Nymphenburg are deficient in evergreens, and in variety of trees and shrubs; but this defect is owing to the climate. As far as art is concerned, the late M. Sckell and his successor have done every thing that modern skill in planting, and in artificially undulating the surface, could suggest. Every part of these gardens is open to the public at all times, without any distinction of persons, and without any fee to the gardener. In fact, fees to gardeners are almost unknown on the Continent;

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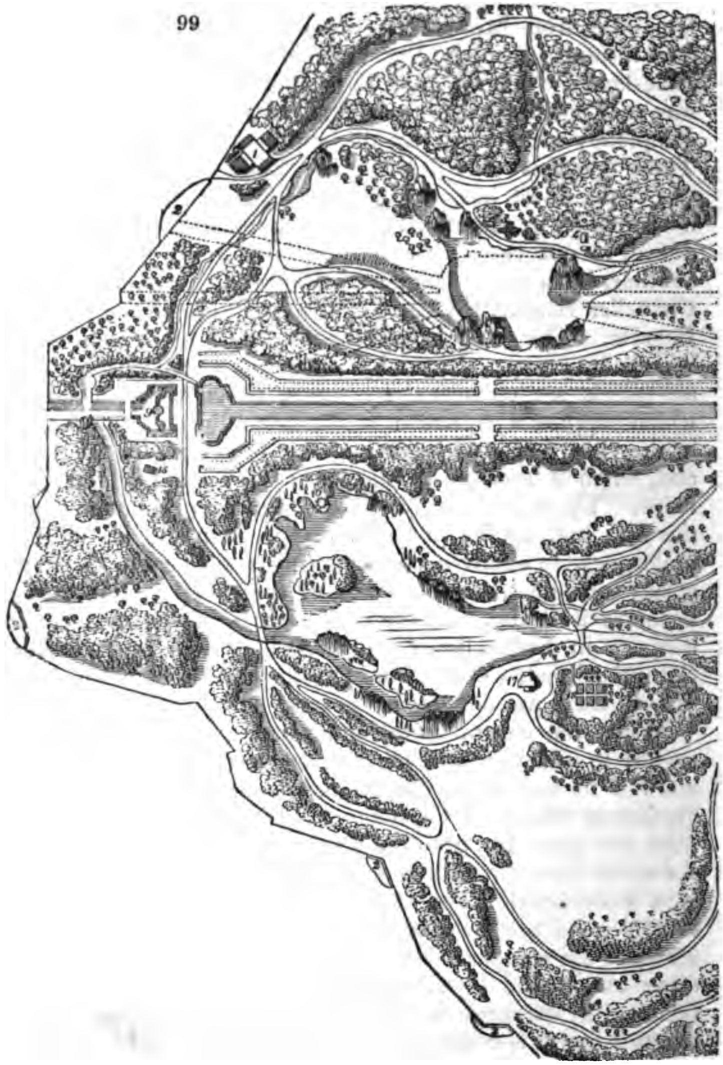

1, Aviary and cottage.
2 2 2, Sunk fence, in order to admit of a view beyond the boundary.
3, Garden pavilion.
4, Statues.
5, Covered seat or alcove.
6, Range of hot-houses in the botanic garden.
7, Kitchen-garden.
8, Buildings connected with the palace, for different officers, troops, &c.
9, Cascade. 10, Straight canal.
11 11, Jets proceeding from rocks, which throw the water, in hollow columns nearly 9 in. in diameter, upwards of 80 ft. high.
12, Centre of the palace.
13, Cascade. 14, Straight canal.

whilst, in all the show places in England, they form the principal part of the gardener's income.

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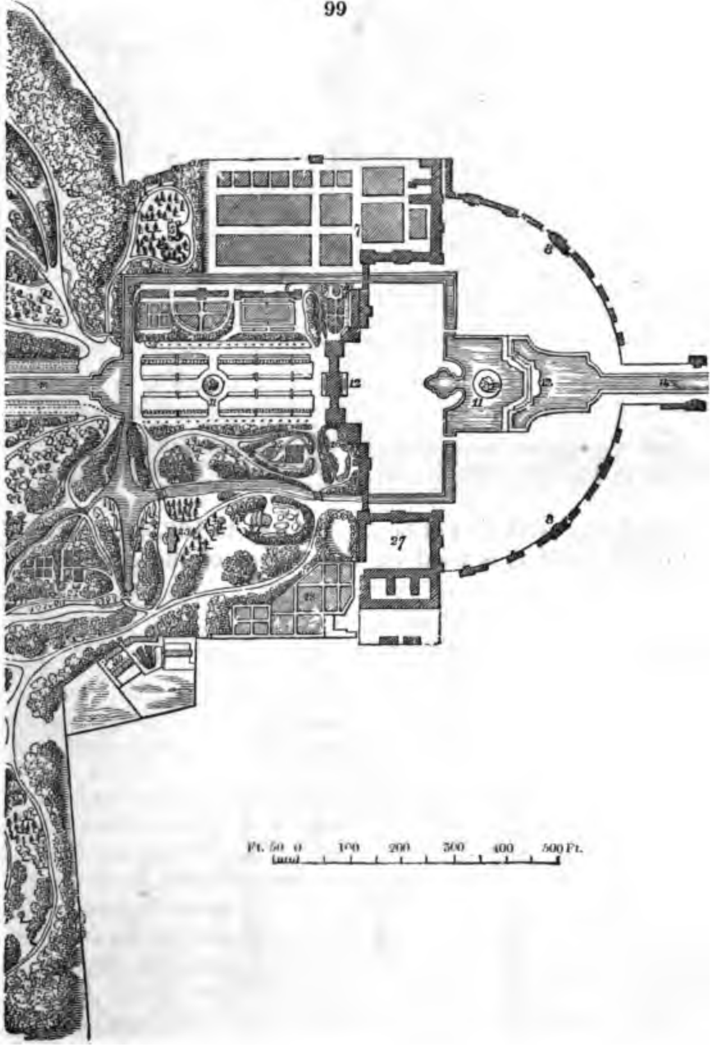
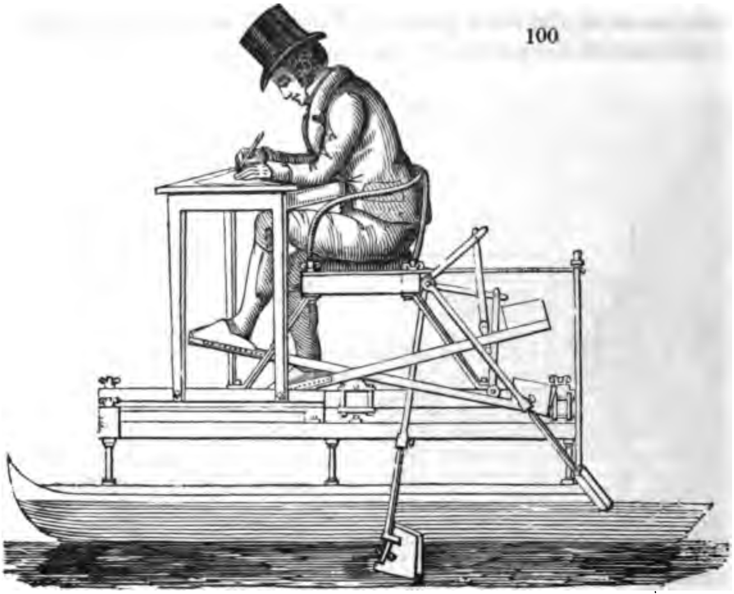


15, Small temple. 16, Grecian temple.
17, Garden pavilion, containing pictures, statues, china, &c.
18, Place for beavers.
19, Gamekeeper's cottage.
20, Pheasantry. 21, Engine-house.
22, Bridge and water-wheel.
23, Banqueting-house for the use of the public.
24, Private flower-garden and summer-house.
25, Private flower-garden and open bower.
26, Private garden and entrance to the palace.
27, Quadrangle of buildings for the officers of the court, and their establishments.
28, Small gardens for the officers of the court.
29, Poultry yard, sheds, and keeper's cottage.
30, Shelters for game.



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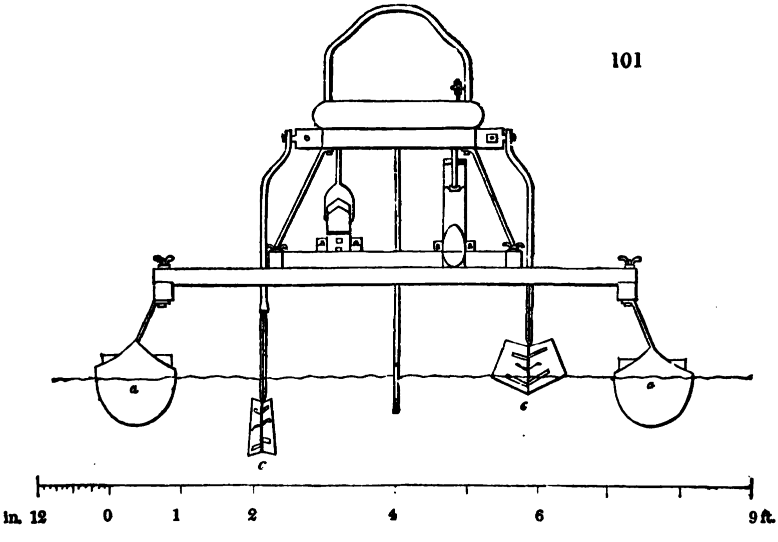
A curious description of boat (*figs.* 100. to 102.), the invention of M. Baader, is used on the waters of the gardens at Nymphenburg during the summer season. It consists of two small boats (*a*), on which a platform is fixed (*b*); and on this



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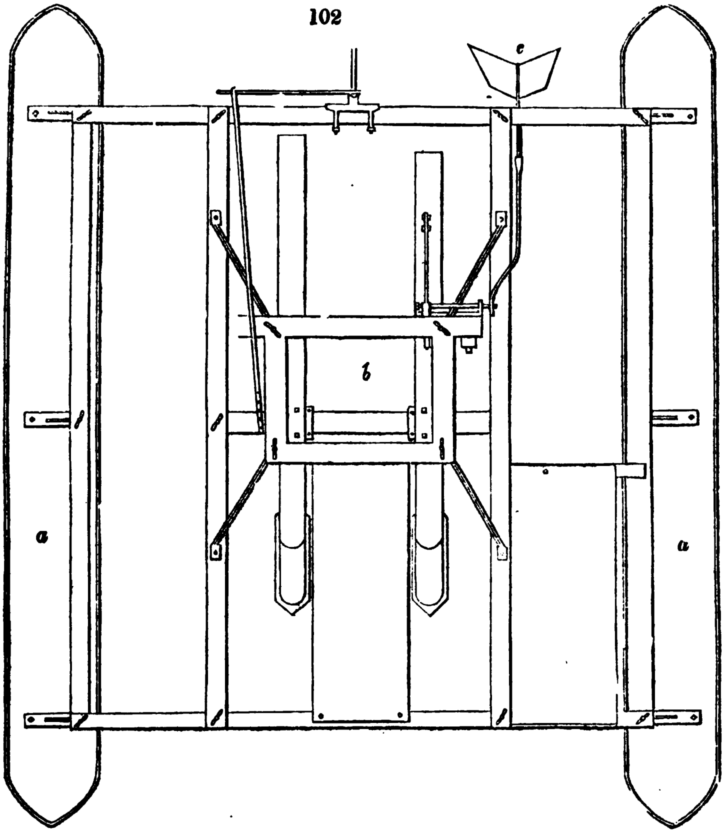
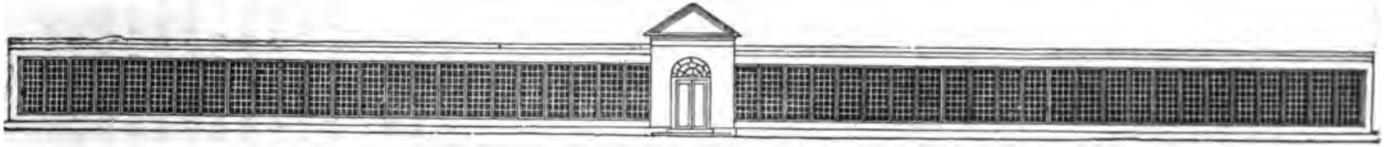
102

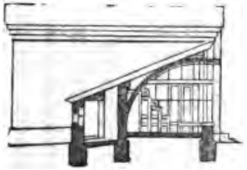


platform a chair may be placed, in which a person may sit, and read, or angle, or shoot; and either float about as the wind may direct, or guide himself by working with his feet the two paddles marked *c*.

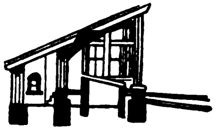
The architecture of the palace of Nymphenburg is by no means proportionate to the magnificence of the gardens; but, we believe, it is more intended as a simple country house, than as a splendid regal residence. In the view of the entrance front (*fig.* 104.), and in the plan (*fig.* 99.), the multitude of parts into which this palace and its dependent buildings are divided, give the whole more the air of a market-place surrounded by dwellings, than of a palace residence in the country. This impression, however, is counteracted by the trees, the long canal, and the grandeur of the jets d'eau.

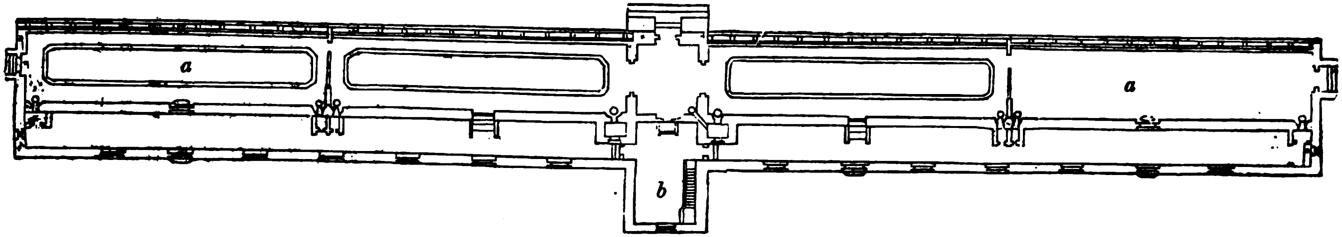


Cross section at *b*.



Cross section at *a*.





104

The range of stoves and green-houses in the botanic garden at Nymphenburg (*fig.* 103.) is very substantial, with opaque roofs; and the interiors are remarkably well finished, and heated by German stoves, concealed among the plants, and supplied with fuel from the sheds behind. The collection of palms in the stove, in November, 1828, consisted of about 70 species, all large plants, recently procured from Holland. The catalogue of the open garden, published in 1826, by Sterler, contains upwards of 3000 species of herbaceous plants.

The royal château of Berg, on the lake of Würmsee, is a private summer retreat of the king's, on the nearest hilly and picturesque ground to Munich. The house is nothing; but the grounds, which occupy 200 acres, are hilly, irregular, rocky, bordered by an immense lake, and very picturesque. The groundwork of the wood was the remains of a forest, composed chiefly of beech, hornbeam, and spruce fir. This wood Louis Sckell has judiciously enriched, and distinguished from the common woody scenery of that country, by the introduction of a number of exotics; and he has displayed the whole to the greatest advantage, by walks, by baring the rocks in some places, by deepening the glades in others, and by shutting out or exposing to view exterior objects, as the effect might require. The cherry is the only fruit tree that will thrive here as a standard, so severe are the winters. The walks are made of calcareous tuffa; and, being brimful, of a brownish colour, and firmly rolled, become as hard as solid stone, and in appearance are only inferior to Kensington gravel. This tuffa, which is the deposition of the limestone of the country, is perfectly soft when taken out of the quarry; but it very soon afterwards becomes hard: it is put upon the walks in a state of powder, only six or eight inches thick, and immediately rolled. As many of the walks at Würmsee are on very steep surfaces, were it not for the description of material of which they are composed, they would be constantly washed down by the rains. So formed, they scarcely ever require either weeding or future repair.

The château of Baron Eichthal, at Ebersberg, is more remarkable for being the residence of a distinguished Bavarian patriot, who has introduced Scottish agriculture on his estate, than for its gardening. The situation, however, is of singular grandeur and beauty. The château is placed on an elevated platform, on one side of a basin, which has once been a lake, but which is now covered with fertile fields, and surrounded by hills, partially wooded, having one outlet by a valley, in the extreme distance of which is seen Hohenlinden, the site of the famous battle of that name. A plan (*fig.* 105.) for laying out a pleasure-ground in front of the château was formed, in 1824, by Charles Sckell; and, as it is instructive, as illustrating his manner, we shall submit it with its details: —

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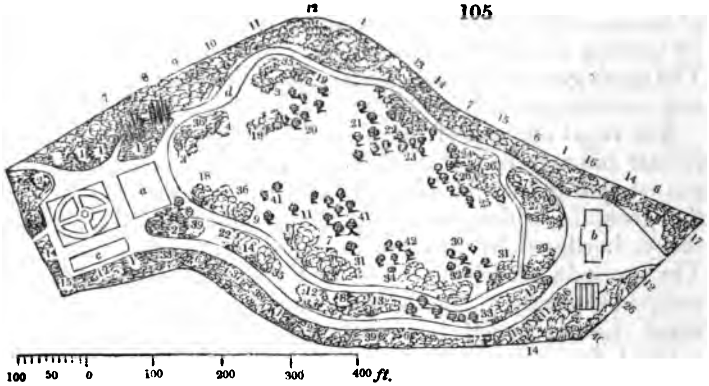
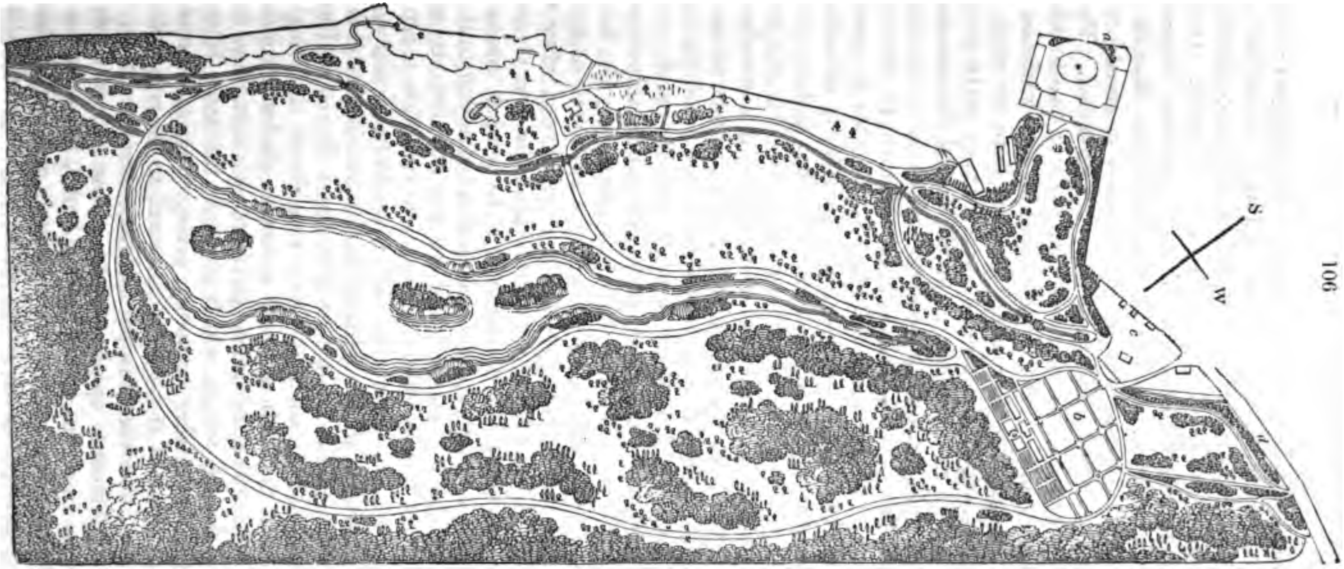


a, Dwelling-house. *b*, Stable offices. *c*, Orangery. *d*, Temple. *e*, Frames and pits.

The following numbers indicate the kinds, and the disposition, of the trees and shrubs: —

1, *Fráxinus* excélsior.
2, *A'cer* Pseùdo-*Plátanus*.
3, *Ròsa* centifòlia.
4, *Syrínga* pérsica.
5, *Pópulus* itálica.
6, *Prùnus Pàdus*.
7, *A'cer Negúndo*.
8, *Pópulus* canadénsis.
9, *Spiræ'a* opulifòlia.
10, *Spiræ'a* crenàta.
11, *Syrínga* vulgàris.
12, *Robínia* Pseùd-*Acàcia*.
13, *Pópulus* cándicans.
14, *Prùnus Mahàleb*.
15, *A'cer* dasycárpum.
16, *Æ'sculus* Hippocástanum.
17, *Pópulus* balsamífera.
18, *Ròsa* semperflòrens.
19, *Vibúrnum* ròseum.
20, *Robínia* inérmis.
21, *Liriodéndron* Tulipífera.
22, *Rhùs Cótinus*.
23, *Céltis* occidentàlis.
24, *Pỳrus* spectábilis.
25, *Lonícera* cærùlea.
26, *Lonícera* tatárica.
27, *Syrínga* vulgàris flòre rùbro.
28, *Syrínga* chinénsis.
29, *Robínia* viscòsa.
30, *Catálpa syringæfòlia*.
31, *Córnus* álba.
32, *Cratæ'gus Oxyacántha* fl. rùbro.
33, *Jùglans* cinèrea.
34, *Cýtisus Labúrnum*.
35, *Rùbus* odoràtus.
36, *Spiræ'a hypericifòlia*.
37, *U'lmus* campéstris.
38, *A'lnus* glutinòsa.
39, *A'cer* platanöìdes.
40, *Philadélphus* coronàrius.
41, *Plátanus* occidentàlis.
42, *Pópulus* álba.

The garden and grounds of Count Monteglas, at Bogenhausen, near Munich (*fig.* 106.), are partly situated on a



a, Proposed mansion and offices.
b, Kitchen-garden and hot-houses already existing. *c*, Farm-yard.
d, The river Iser, which separates the park of Monteglas from the public English garden.
e, A picturesque Swiss cottage, serving as a summer-house to the count's family when they visit the garden.

piece of alluvial soil, left by the Iser, and partly on a high bank. There is no house; but when Louis Sckell laid out the grounds, he did so with a view to a situation, on which it is supposed the son of the present count will build. In the mean time, the kitchen-garden and forcing-ground here are the most celebrated of the private gardens about Munich for showy flowers. Pine-apples are also grown in considerable quantity, and every description of forcing is practised. There is a good collection of orange and lemon trees; two hundred sorts of Pelargònium; five species and twenty varieties of Cinerària; a genus which seems to sport here as much as Brássica or Georgìna. Bulbs are forced very early in this garden; and I'ris chinénsis is much valued for the same purpose. Knoll, or bulbous-rooted, celery is grown here and in the other kitchen-gardens about Munich, to the utter exclusion of the common celery. Mignonette is grown, throughout the winter, in pits; and also Ibèris umbellàta, which, when turned out of the pots, in spring, attains a large size in the open border. There are seventeen sorts of Chrysánthemum sinénse, eighty sorts of stocks, and a number of varieties of China roses. Among the conspicuous plants of the green-house are Lavándula multífida and Leonòtis Leonùrus. The fruit trees here are all named; and, every autumn, their stems are rubbed over with tallow mixed with bruised gunpowder, which is found to keep away the hares. Count Monteglas, though at present not in favour at court, is considered the regenerator of Bavaria; having, after the breaking out of the French revolution, been the first German minister who induced his government to abolish monastic institutions, and to appropriate the estates belonging to them to the use of the government, and for the maintenance of a national system of education; and also to establish a representative system of government. We brought home with us an excellent portrait of this enlightened and benevolent nobleman.

The garden of the Prince of Tour and Taxis, at Ratisbon, is laid out in what is there considered the English manner, and is not without some agreeable glades and points of view. There is a handsome pavilion, as a substitute for a mansion, with two wings, which serve at the same time as apartments for receiving company, giving fêtes, and preserving plants. One of these wings is heated to the temperature of the tropics, and contains palms, scitamineous plants, the bamboo, orchideous epiphytes, &c.; the other contains orange trees, camellias, and Chinese, Japan, Cape, and Australian plants. On entering the grounds, a board, elevated on a post, invites all to enter and enjoy themselves who come without dogs, and who are lovers and friends of nature. On the whole, these grounds may be considered as a delightful public garden for the inhabitants of Ratisbon.

The gardens of Baron Wohnlich, at Augsburg, are not extensive, but they contain a considerable variety in the disposition of the parts, and in the trees and shrubs. There is also a collection of Cape and Australian plants, and some good orange trees.

The gardens of Madame Heppe, at Nuremburg, are the richest in Bavaria in botanical interest, next to those of the king, at Munich. They contain only five or six acres, but these are full of fine plants. Madame Heppe, who is a lady of considerable wealth, devotes the whole of her time, and the greater part of her fortune, to botany and gardening. She has seen all the principal gardens on the Continent, and makes annual excursions to wherever she hears there is any chance of procuring an addition to her collection. The garden is laid out in the regular style; and contains, besides botanical collections, in the open ground, spaces devoted to showy flowers, collections of fruit trees, culinary vegetables, a hop-ground, two large green-houses, a large stove, numerous pits and frames, and the upper part of a house for the preservation of plants of rosemary, which is the only garden article sold by Madame Heppe, and for which there is a great demand in Nuremburg, during the winter season, for religious purposes. We observed here a good collection of gooseberries, a thing rare in Germany; and an arcade of lime trees, terminating in a perspective view of the estate of Madame Heppe, near Würtzburg. Madame Heppe pursues the very commendable practice of every year trying to acclimatise a number of green-house plants; and she was the first in this part of Germany to find that *Caprifòlium flexuòsum* was quite hardy.

Suburban Gardens at Nuremburg.—The garden of M. Wiss contains six or seven acres of varied surface, with a large lake and an island surrounded by banks, planted with trees, and intersected by walks, from a plan of Charles Sckell. The garden of M. Beitelmeyer forms a striking contrast to that of M. Wiss, being laid out in the French style, and, indeed, consisting almost entirely of small circles surrounded by box; each circle containing a lime tree in the centre, clipped to a conical shape, and underneath displaying a variety of low shrubs and flowers. Nothing could exhibit greater sameness than the general plan; but every circle, individually, was full of beauty. We were informed that this garden is kept up at a great expense; the plants, which do not thrive under the lime trees, being continually renewed from the commercial gardens. The garden of M. de Schwartz, at Weigelshoff, contains twelve or fifteen acres, and is laid out in a style which aims at combining a kitchen-garden, from which articles are sent to market, a nursery, from which trees are sold, and a flower-garden, in which tulips, hyacinths, and other bulbous roots are grown, with the general effect of a landscape, or English, garden. The gardener we found a very scientific young man, a beautiful ichnographic draughtsman, and priding himself on his knowledge of Euclid. In this garden we found the Hamburg parsley of an extraordinary size, and were informed that seeds of it, grown there, were sent by the Nuremburg seedsman, M. Falcke, to various parts of Europe, including England. We saw roots of it two inches in diameter and three feet long. We also saw large quantities of marsh-mallow roots, which are cultivated round Nuremburg by the acre, for the apothecaries and the paper-makers. Stramonium is also cultivated here for the apothecaries; and pine-apples for the master's own table, and for sale, whenever an opportunity is offered. This garden presents a singular combination of objects for profit, and arrangements for display; and it is difficult to conceive how it can attain both ends; but the satisfaction may be in the idea of attempting to attain them. The garden of M. Campe, the principal bookseller of Nuremburg, is highly kept, and contains a good collection of green-house plants. Almost all the principal citizens of Nuremburg have country houses and gardens in the neighbourhood; and such as cannot afford to have country houses have generally small pieces of ground, in which they cultivate flowers and vegetables in the mornings and evenings, in the same manner as is done by the inhabitants of Birmingham, and of many of the other manufacturing towns in England. These little gardens are generally situated in the interior of the numerous large market and seed gardens with which Nuremburg is for miles surrounded. The ramparts, ditch, and other parts of the fortification, which enclose the city, are not levelled down, as at Frankfort; but they are laid out in groups and thickets of flowers and shrubs, with sanded walks, and kept in very high order at the expense of the town.

The public gardens of Bavaria are numerous and extensive. The English garden, at Munich (*fig.* 107.), is unquestionably the finest thing of the kind in Germany. It contains about 500 acres, and was laid out, in 1789, under the direction of Count Rumford, of whom it contains a handsome monument. The plan was made by Louis Sckell, to whom also a monument is erected in this garden.

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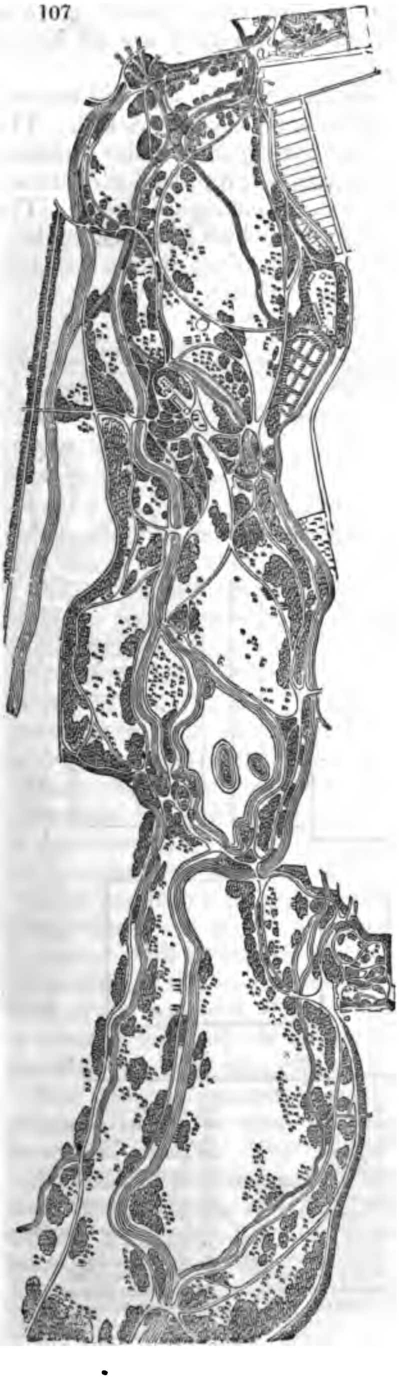

The surface is flat; but a river, always containing abundance of water, flows through it; and from this a lake of considerable size has been formed, and some cascades. The roads extend four miles. The trees are planted in masses and groups, one sort always prevailing in one place; and the only fault they have (as has been noticed by a talented writer, Vol. VI. p. 408.) is, that this is done in rather too formal a manner. When passing through this garden, we could not help observing the effect of the different kinds of trees, even when stripped of their leaves. *C*órnus sanguínea, a very conspicuous red; Lonícer*a* Xylósteum, white; *S*àlix vitellìna, yellow; birch stems, white; larch, yellow; *S*piræ̀a *s*alicifòlia, dwarf and brown; *H*ippóphae *r*hamnöìdes, very white; &c. The details of the working plan of this extensive garden may, perhaps, be given in a future Number.

The Hof Garten, or court garden, is situated in Munich, in front of the palace. It is not extensive; but it is beautifully shaded by lime trees, the ground underneath which is covered with turf, and the turf is renewed every year in spring.

The Chinese Tower, the Paradise, the Tivoli, Kleinhesellohe, and Volksfeste, are other public gardens within Munich, or in its suburbs; and they are all highly kept during the summer season.

The garden of the Glyptothek (*fig.* 108.) was laid out and planted, in 1827, from the design of Charles Sckell. The Glyptothek (*fig.* 109.) is a handsome quadrangular building, enclosing an open court, and containing a collection of statues and other sculptures, arranged in chronological order. The garden is liable to the chief objection which has been made to the style of the Messrs. Sckell; viz. that of too great a formality in the masses of one kind of tree or shrub.

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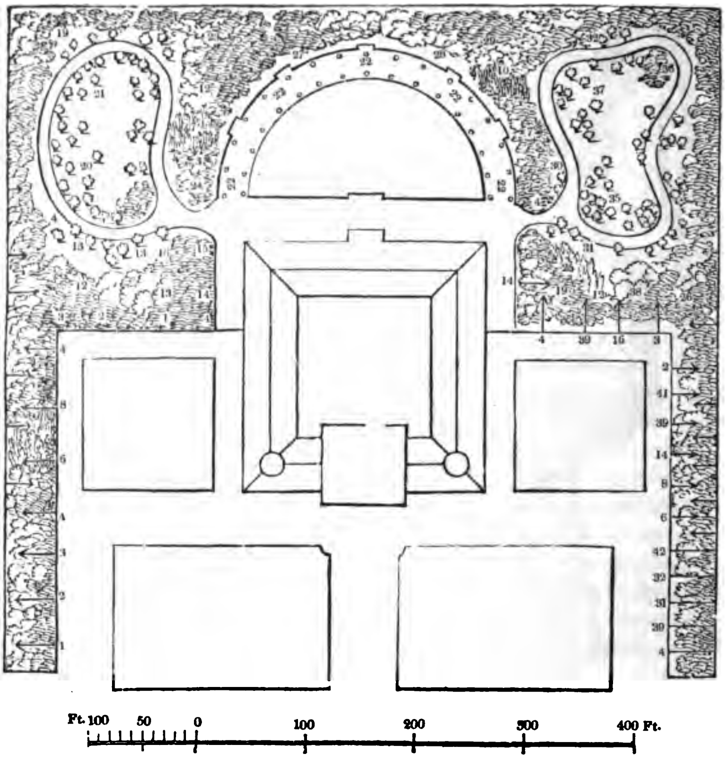
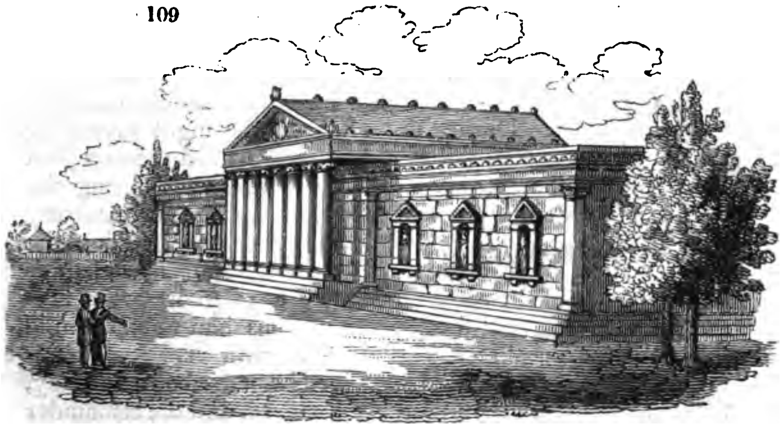


1, Spiræ'a opulifòlia.
2, Cýtisus Labúrnum.
3, *V*ibúrnum *O'*pulus ròsea.
4, *C*órnus álba.
5, *C*órnus máscula.
6, *C*ytisus sessilifòlius.
7, *P*rùnus *Mahàleb.*
8, *S*piræ'a crenàta.
9, *P*ópulus cándicans.
10, *P*rùnus *P*àdus.
11, *F*ráxinus excélsior.
12, *R*obínia Pseùd-*A*càcia.
13, *P*ópulus álba.
14, *P*hiládélphus coronàrius.

15, Robínia viscòsa.
16, Robínia híspida.
17, *J*ùglans cinèrea.
18, *A*'cer *Negúndo.*
19, *A*'cer platanöìdes.
20, Liriodéndron Tulipífera.
21, *P*látanus occidentàlis.
22, *U*'lmus campéstris.
23, *A*'lnus glutinòsa.
24, *R*hús *C*ótinus.
25, *A*'cer dasycárpum.
26, *Æ*'sculus Hippocástanum.
27, *C*ratæ'gus *O*xyac. fl. rùbro.
28, *Syrínga* vulgàris.

29, *J*ùglans nìgra.
30, *C*ratæ'gus coccínea.
31, *Syrínga* pérsica.
32, Lonícera tatárica.
33, Juníperus virginiàna.
34, *T*hùja occidentàlis.
35, *Ailántus* glandulòsa.
36, *R*òsa centifòlia.
37, *F*ráxinus excélsior péndula
38, Robínia viscòsa.
39, *R*ùbus odoràtus.
40, *S*órbus aucupària.
41, Staphylèa pinnàta.
42, *Syrínga* chinénsis.

109



The general cemetery at Munich is surrounded by a border of trees and shrubs, with the exception of one end, in which is placed a semicircular building, composed of an open colonnade in front, with vaults underneath. In the centre of this semicircular building is a projection behind, called the Leichenhaus, containing three large rooms, in two of which (one for males, and the other for females) the dead, as shrouded and deposited in their coffins by their relations, are exposed to view for forty-eight hours before they are committed to the earth. The other room is for suicides and unowned bodies. The principal monuments in this cemetery are placed under the colonnade of the Leichenhaus, and against the boundary walls; and they are seen to great advantage from the surrounding walk. The compartments in the central part are bordered by shrubs, flowers, and tombs; and the space in the interior is devoted to graves without tombs, or to graves with monuments, for those who do not choose to go to the expense of placing them in the borders. Where interments take place without tombstones, the ground is not re-opened for seven years; and the relations of the deceased, if they come forward when that period is expired, can defer it for any longer time, according to the payment that they may choose to make.

The Munich cemetery, on All Saints' day (November 1.), presents one of the most extraordinary spectacles that is to be seen in Europe. The tombs and graves are decorated, in a most remarkable manner, with flowers natural and artificial, pictures, sculptures, crucifixes, vessels with meat, corn, seeds, water, oil, bread, &c., crape, feathers, drapery, canopies, branches of trees, dried moss, and, in short, with every conceivable object that can be applied to the purpose of ornament or decoration. The labour bestowed on some tombs requires so much time, that it is commenced two or three days beforehand, and protected while going on by a temporary roof. During the whole of the night preceding the 1st of November, the relations of the dead are occupied in completing the decorations of the tombs; and, during the whole of All Saints' day and the day following, the cemetery is visited by the entire population of Munich, including the king and queen, who go there on foot, and many strangers from all parts of the country. In 1828, when we were present, it was estimated that 50,000 persons had walked round the cemetery on that day; the whole, with very few exceptions, dressed in black. On November 3., about mid-day, the more valuable decorations are removed, and the remainder left to decay from the effects of time and the weather.

The garden of the general hospital at Munich (*fig.* 110.)

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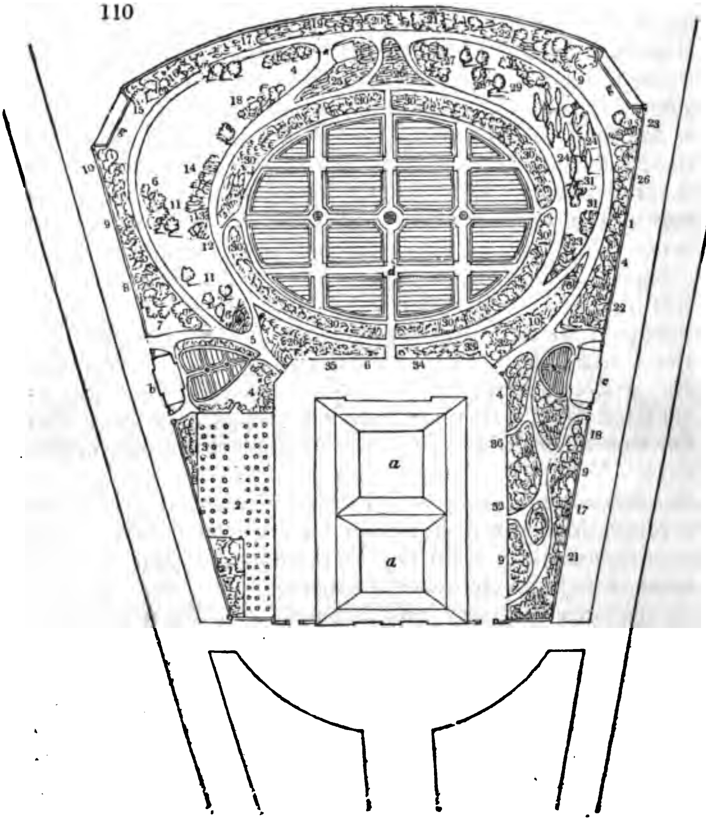

was laid out by M. Louis Sckell, in 1815, and is well deserving of imitation in the case of similar buildings. The only regret is, that there is not half a sufficiency of ground to keep the inmates employed. The following are details: —

a, Courts of the hospital. *b*, House of the director. *c*, Overseer's house. *d*, Kitchen-garden. *e*, Summer-house. *f*, Temple. *g g*, Sunk fences to admit the exterior scenery.

The following are the kinds of trees and shrubs used, and the manner in which they are disposed: —

1, *C*órnus máscula.
2, A grove of lime trees on turf, with benches underneath.
3, *C*órnus álba.
4, *P*hiladélphus coronàrius.
5, *Rìbes* rùbrum.
6, *R*òsa centifòlia.
7, *C*ýtisus *L*abúrnum.
8, *V*ibúrnum *r*òseum.
9, *S*piræˋa *o*pulifòlia.
10, *S*piræˋa *h*ypericifòlia.
11, *P*ópulus álba.
12, *C*ýtisus sessilifòlius.
13, *C*ýtisus elongàtus.
14, *C*ýtisus nígricans.
15, Robín*ia* híspida.
16, Robín*ia* viscòsa.
17, Robín*ia* Pseùd-*A*càcia.
18, Lonícer*a* tatárica.
19, *A*ˋcer *Negúndo.*
20, *A*ˋcer *p*latanöídes.
21, *P*rùnus *P*àdus.
22, *P*rùnus *Mahàleb.*
23, Lonícer*a* cærùlea.
24, *P*ópulus itálica.
25, *R*hús typhìna.
26, *V*ibúrnum *r*òseum.
27, *R*hús *C*ótinus.
28, Robín*ia* inérmis.
29, *R*òsa semperflòrens.
30, Medicinische krauten.
31, Blumen.
32, *C*ratæˋgus *O*xyacántha.
33, *Syrínga* vulgàris.
34, *Syrínga* pérsica.
35, *Syrínga* chinénsis.
36, *C*ratæˋgus coccínea.

Floriculture. — The principal botanic garden in Bavaria is that of Munich. There are also botanic gardens at Nymphenburg, Ratisbon, and a few other places.

The botanic garden at Munich is rich in Brazilian plants, of which it contains a greater number of species than the garden at Kew. It is under the direction of the celebrated Dr. Martius, well known for his *Travels in Brazil*, and for various other works on natural history. The garden was laid out by the late M. Sckell; it contains a handsome entrance (*fig.* 111.); twenty-four compartments for the twenty-four Linnæan classes of herbaceous plants, and a marginal arboretum, arranged with a joint view to the natural orders and to picturesque beauty. The number of species is not numerous, because the great severity of the winter admits of none but natives of very cold climates. Hollies, which grow in the mountainous districts of Bavaria, will not endure the winter at Munich; neither will the box nor the furze: pines, firs, and junipers are almost the only hardy evergreens. The soil of the garden being, in common with that of the table land on which Munich stands, formed of the debris of magnesian limestone, is unfavourable to vegetation, and requires

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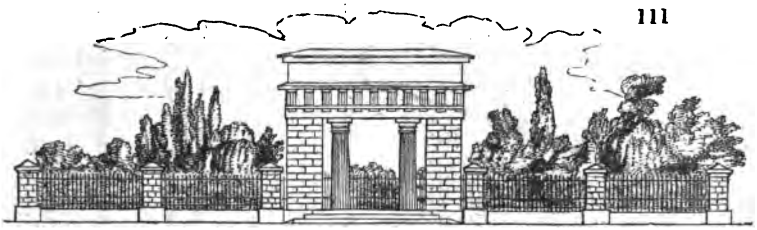

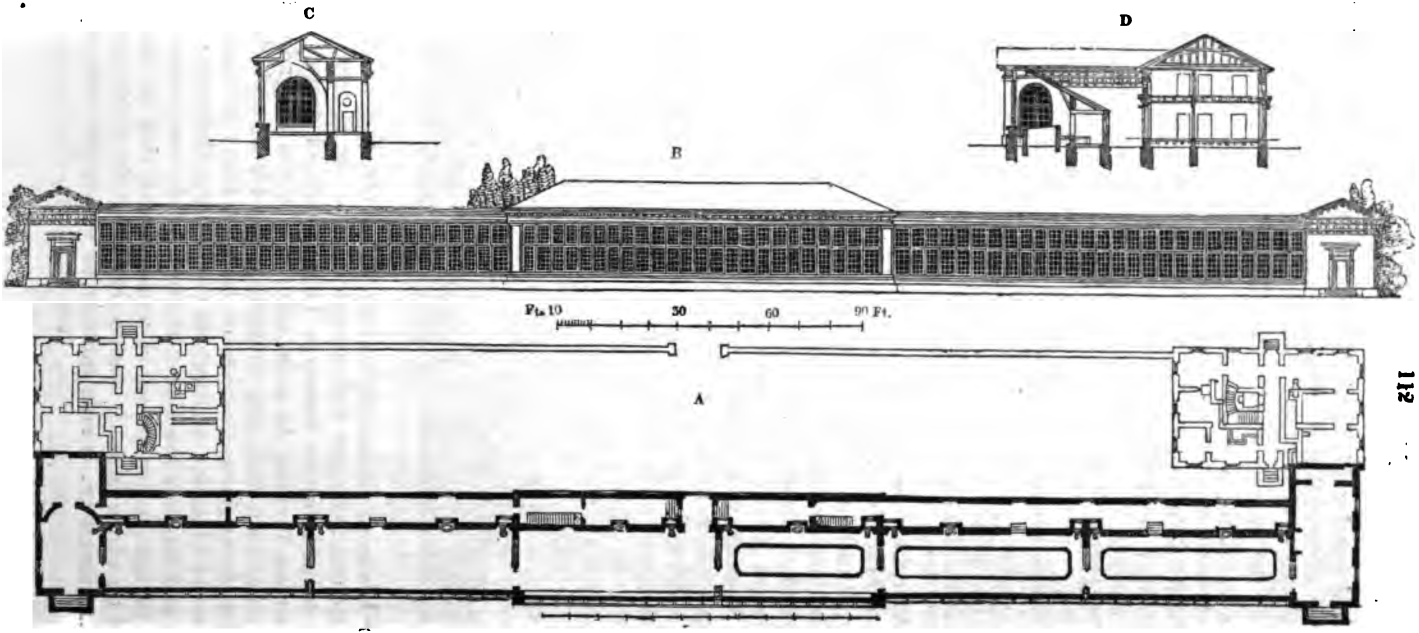
C
D
B
Ft. 10
30
60
90 Ft.
A

to be mixed with a good deal of surface mould or turf. There is black bog earth near the town, but it is found injurious to heath and other hair-rooted plants; and sandy peat is brought from a great distance. The range of hothouses (*fig.* 112.) is handsome of its kind: it contains a numerous collection of palms and succulents, but not many heaths or Australian plants. A new catalogue of this garden is in course of publication by Dr. Martius. *Fig.* 112. A is the ground plan of the three hot-houses and three green-houses; B, the elevation; C, a section through the central green-house, which has the attendant's room behind; and D is a section through the palm-house, which has the curator's house behind.

In the green-house of the botanic garden at Nymphenburg (see *fig.* 103.) was an *Araucària* excélsa raised from a lateral frond. After this plant had been rooted for several years, the gardener cut it down to the ground, when it sent up three upright shoots, one of which he reserved as a leader. The plant, now a handsome tree, was presented by the king to the botanic garden of Erlangen. In the palm house (*a*, *fig.* 103.) is a large specimen of *C*ỳcas circinàlis, which was brought by the French from Vienna to Malmaison, bought at the sale which took place there in 1827, for 600 francs, and carried to Munich. Euphòria *Lìtchi* has also ripened fruit; and *P*hœ̀nix paludòsa and farinífera, *C*hamæ̀rops arboréscens, and *Latània* borbónica, have attained a large size. Mimòsa aquática, from Senegal, the leaves of which are as sensitive as those of M. pudìca, thrives in the green-house. (*b*, *fig.* 103.) Jacquín*ia* arbòrea is propagated at Nymphenburg from leaves, which must be slipped off, planted in sandy leaf-mould round the edge of a pot, and made very firm; in six or eight months they send up a shoot from the base of the footstalk. *Pòthos* acaúlis is raised from seed; which must be sown immediately when it drops from the plant, otherwise it will not come up. Desmòdium adscéndens flowers freely all the winter. All the plants in the green-house here are distinctly named on wooden tallies, stamped by printers' types, set into a small case, screwed up tight, and supplied with printers' ink in the usual manner. The rhododendrons and laurustinuses are kept in the green-house. The latter are trained with stems six feet high, with thick bushy heads five feet in diameter, which are covered with flowers all the winter.

The botanic garden of Ratisbon contains about an acre, and has a moderate collection of plants, chiefly herbaceous, and natives of the north of Europe, arranged according to the Linnæan system. There is a green-house, with an opaque roof, containing a few Cape and Australian plants, with some which are natives of the south of Europe, and which stand the open air in England. Among these are the common and Portugal laurels, the laurustinus, the arbutus, &c.

The garden of Michael August Stöttner, at Nuremburg, which occupies five or six acres, is celebrated for its collection of pelargoniums, said to be the most extensive on the Continent. In 1829 the catalogue contained 430 names, with their authorities. M. Stöttner, who is a wealthy amateur, has, with the assistance of M. Reider, a well known gardening author at Nuremburg, commenced a work on *Geraniàceæ* there, like that of Mr. Sweet.

Floriculture, in the neighbourhood of Munich, is carried to a far greater extent than will readily be imagined, when the elevated situation and consequent severity of the climate are taken into consideration. The ranunculus, the violet, the hyacinth, and the narcissus are in bloom in the hot-houses of the royal gardens throughout the winter; and roses, honeysuckles, lilacs, azaleas, rhododendrons, pinks, tulips, and other shrubs and flowers, are forced as successfully, and come as early into bloom, as in London. Chrysanthemums, in small pots, and only a few inches high, are cultivated, and forced, so as to be in bloom all the year.

The early history of *Horticulture* in Bavaria has been already given by a Bavarian gardener. (Vol. V. p. 385.) Its present state is, in some respects, in advance of the art in England. The preservation of culinary vegetables through the winter is effected with wonderful success in the higher parts of the country, and particularly about Munich. The principal means made use of are, cellars deeply sunk in the ground, in which the vegetables are planted on shelves of earth; coverings of straw mats, and of thick boards, for pits and frames; and opaque roofs, with coverings of straw mats, for the front glass of hot-houses of every description.

The royal kitchen-garden at Munich contains extensive hot-houses and pits for forcing; and on the walls are vines, for the purpose of laying down the shoots to root into pots, and afterwards to ripen their fruit under glass frames, as in Holland and Denmark. Asparagus is here grown in the open air, in double rows, with a space between, which is dug out and filled with hot dung, while the plants are covered with a wooden frame. An immense quantity of asparagus is used by the royal family from December to February. All the varieties of the cabbage tribe are here taken up on the first approach of winter, and planted close together, in sheds with glass fronts, the air within being kept at a moderate temperature by stoves. One of the vegetables forced during the winter is kohl-rabi; it is sown in October, transplanted in November, and begun to be gathered at Christmas, continuing from that time to March, when the bulbosities are about the size of turnip radishes. Kidneybeans and mushrooms are produced here during the whole winter, and also alpine strawberries. The latter are grown in pots in a house, the glass of which, in front, is nearly perpendicular. The pots are placed on shelves, close to the glass, those having the fruit ripe being always on the upper shelves, where the air is necessarily warmest; and those last brought in being placed on the lower shelves, where the air is colder. As the fruit on the upper shelves is ripened off, and the pots removed, those on the lower shelves are brought up to supply their places, and pots from the frames in the open garden are substituted in their stead. This succession is carried on from October to June, when strawberries ripen in pits in the garden, and, in the first week in July, in the open ground. It thus appears that the horticultural luxuries of the kings of Bavaria are greater than those of the kings of either France or Britain. It is proper here to observe, that no human art can ever effect in Britain what it can in Bavaria in the forcing of fruits during winter, on account of the steady, clear, and cloudless atmosphere of the latter country at that season. Its extreme cold may be overcome by art; but this can never be the case with the fogs of Britain; or, at all events, art has not yet been carried so far as to lead even to a hope of such a result.

The kitchen-garden at Nymphenburg contains a number of hot-houses in which pines are kept in the winter-time, and pits in which they are fruited during the summer season. In one pit they are grown in a bed of earth in the natural manner, and there they remain for four or five years, producing numerous suckers from the stems, and a perpetual succession of fruit, which, though small, is high-flavoured. (See Vol. V. p. 427.) In October, 1828, we found ripe alpine strawberries in pits; and were informed that this fruit was produced, either in the open air or under glass, every day in the year. Mushrooms are also produced throughout the year, and abundance of salading of every description, including succory, grown from the old roots in cellars, and mustard and cress from the seeds in stoves. Cabbages, celery, leeks, parsley, and a number of similar vegetables, are planted in autumn in pits or beds, surrounded by frames or walls, and covered every night by wooden shutters over which are placed straw mats. In the most severe weather, these coverings are only taken off when some of the vegetables are wanted for use. In cellars and large rooms shelves containing layers of earth are formed one above another; and in these cauliflowers, broccoli, lettuce, and other vegetables, are kept through great part of the winter. Endive is taken up, dried in a hot-house, the leaves tied close together with rye-straw, and the plants afterwards buried in the soil, with the roots upwards, and protruding a few inches above the surface, and the whole covered with thatch, to keep out the rain and the frost. In this state it will keep till spring. Cabbages are also kept in the same manner, both in Germany and in the highlands of Scotland. In short, the exertions made by the German gardeners, in so severe a climate as that of Bavaria, are such as the British gardener can form little idea of; and, with the clear dry air of the country, their great success is alike incredible.

The culture of asparagus at Ulm has been already given. (Vol. IV. p. 493.)

The *Arboriculture* of Bavaria consists chiefly in planting trees by the sides of the public roads; the supply of timber being abundant from the native forests. The roadside trees are, for the most part, Lombardy poplars, lime trees, sycamores, and elms; but none of these trees, it is to be observed, are planted in soils and situations where fruit trees will prosper and ripen their fruit.

There are several government nurseries for the propagation and sale of fruit and forest trees, some of which have been already noticed or described (Vol. IV. p. 496., and Vol. V. p. 384. 424.), and we have only to add one or two others.

The nursery of M. Schültz, between Munich and Nymphenburg, consists of about two acres, chiefly devoted to florists' flowers and roses. There is a large green-house, and also a hot-house: in the former are 150 sorts of pelargoniums from Vienna, and upwards of 100 English sorts. There is a good collection of succulents, and some camellias, ericas, and Australian plants. Among the hardy flowers, twenty-four sorts of hollyhocks, five of *Zínnia*, 300 of auricula, and 350 sorts of carnation, are in the catalogue. The range of glass, which is about 200 ft. long, is sometimes covered with straw mats, for weeks together, during severe weather.

The nursery at Schleissheim was laid out by M. Sckell, and is one of the most complete in Bavaria. It is laid out in parallel compartments from east to west, so that the rows in beds across them are from north to south; thus admitting the sun, once every day in the year, to every part of the ground's surface. Along the walks are planted single specimens, in alphabetical order, and handsomely named on wooden tallies, of all the hardy forest and fruit trees and shrubs cultivated. The principal part of the trees planted along the public roads are supplied from this nursery: they are generally from twelve to eighteen feet high. After being taken up, they are carried to a shed, and pruned, and afterwards placed in a cellar, to protect them from the frost till wanted. Shrubs of the more tender kinds are taken up and planted in earth in cellars; where they remain till spring, when they are sent to their final destination. The principal object in removing the trees before they are wanted for the plantations is, to prevent the interruption of the labours and cropping of the nursery in the spring: every thing in this, as in the other departments of national gardening in Germany, going on in the most systematic and scientific manner.

The nursery of M. Falcke, at Nuremburg, is situated in the town; but it contains a number of select plants in pits. In November, 1828, we found a frame of ranunculus, and another of anemone, in full flower; in a green-house, Campánula pyramidàlis, twelve feet high, and covered with blossoms; sixty sorts of pelargoniums, fifteen sorts of Caméll*ia*, and twelve sorts of Chrysánthemum. The green-house plants were chiefly those of the Cape: but even in England they would have been considered a respectable collection. In the frames were 300 sorts of carnations; no pinks, which are little cultivated in Germany; 140 sorts of auriculas; with stocks, many sorts in flower; violets, mignonette, &c. In a cellar under the seedshop, among barrels of beer, tubs of *sauer-kraut*, and piles of apples and potatoes, covered with straw, we found cabbages, endive, and broccoli planted in earth; pomegranates, figs, and Althæa frutex in tubs, and 1000 pots of Hydrángea. M. Falcke deals chiefly in seeds, and has another garden, or rather large field, at some distance from Nuremburg, where these and other commoner nursery articles are grown in large quantities. The soil for some miles round Nuremburg is a warm dry sand, and it is almost wholly occupied in the growth of garden seeds, which are sent to all parts of Germany and the north of Europe, and to France, England, and Turkey. Clover seeds are here raised in large quantities, and even the seeds of tobacco and asparagus. What is remarkable (considering the climate) is, that large quantities of tuberoses, tiger flowers, hyacinths, narcissi of different kinds, Amarýll*is* formosíssima, and Guernsey lily, are grown to a great extent in this warm sand. In the year 1827, M. Falcke sent 2800 double tuberoses to one house in Petersburgh. He sends a great quantity of seeds annually to Spain and Portugal. On the whole, he is of opinion that there are more garden seeds raised in the neighbourhood of Nuremburg than there is round any other city in Europe, and that the next greatest quantity is grown in the neighbourhood of Erfurth. The seeds are grown for the dealers by a particular description of cultivators, who answer to the seed-farmers of England.

Before proceeding to notice the state of agriculture in Bavaria, we shall here give a general outline of the system by which the whole of the royal, or government, gardens are managed. In the first place, there is a government officer, bearing the title of director-general of gardens, who has an office, consisting of several rooms, in a building in Munich, containing other government offices. The present director-general is M. Charles Sckell, nephew to the late Chevalier Louis Sckell, author of an excellent work on landscape-gardening, and father of that department of our art in Bavaria. In M. Sckell's office is a clerk or secretary, and a draughtsman. In this office there are plans of all the royal and government gardens and nurseries on a large scale, with a manuscript volume belonging to each plan; in which is kept, by the secretary, a regular account, or journal, of all that passes between the director-general and the intendant of the particular plan or garden, whether in regard to orders given, work done, produce disposed of, or repairs, alterations, &c. There is also an excellent library, chiefly of books on landscape-gardening and rural architecture, and a complete set of instruments for surveying, mapping, drawing, &c. The director-general has also a book for himself, in which he enters a short abstract of all his transactions, referring to the other books for details. For example, suppose on this 29th of June the director wrote a letter to the manager of the nursery at Schleissheim, he would make an entry in his own book thus: — "June 29th. Wrote to M. B. at Schleissheim as to repairing the outer gate: see S. J. (Schleissheim Journal), p. 1020." At that page of the Schleissheim Journal would be found a copy of the letter sent, and before it a copy of the correspondence, or an account of the transactions, which led to the writing of that letter.

To each of the public gardens or government nurseries there is an intendant, or manager, who has also his office, containing a good garden library, a tool and seed room adjoining, in which garden instruments, such as knives, saws, hedge-bills, &c., and seeds are kept; as well as various other garden articles, not suitable for being placed in the open sheds. The principal piece of furniture is a desk, in which is kept a large manuscript book for entering all the correspondence with the director-general, and other books of the usual kinds for payments and receipts. Whenever the director-general proposes to do any thing of importance, he communicates directly with the king. For example: before M. Sckell gave us copies of *fig.* 99., and a number of other plans of Bavarian gardens, he went to the palace, and sent up a note, requesting permission to do so. The king granted it at once, by writing a few words on the margin of the note, and returning it to M. Sckell, who showed it to us. Every thing is done in an equally prompt and business-like manner, alike creditable to master and servant.

Agriculture in Bavaria. — One of the principal reasons which induced us to visit Bavaria was, to obtain some knowledge of the present state of its agriculture, in order to correct what we had said on that subject in the historical part of the first edition of our *Encyclopædia of Agriculture.* The information there given was derived entirely from books: but, though some of these were of very recent publication, such as a new *Edinburgh Gazetteer* in several volumes, yet in none of them was there one word on the state of agriculture and domestic improvement in Bavaria, which did not apply to a period previous to the breaking out of the first French revolution; in short, to the middle of the last century. Considering that ten years of general peace had elapsed when the first edition of the *Encyclopædia of Agriculture* was published, this may appear surprising; but the truth is, that even now, after nearly twenty years of peace, there are many states in Germany of which we know very little.

Bavarian agriculture, previously to the first French revolution, was, according to all accounts, less advanced than that of any other state in Germany, and, indeed, remained stationary for ages. By far the greater part of the land in cultivation was the property of the religious establishments; and the capital, Munich, was, as the German name (München) implies, the City of Monks. When, however, the estates of the religious establishments were sold, they were chiefly divided into lots so small that almost every individual who was head of a family became a purchaser. These purchases were made at very low prices, on long credits; and a very great number of them, perhaps the greater number, were agreed to be paid for by the occupant in a terminable annuity; that is, he paid a fixed rent for a certain number of years, after which the land became his own freehold. The labourers, who had thus suddenly become proprietors, had, for the most part, previously cultivated the same lands for the religious establishments, and therefore the external change was, at first, hardly apparent. Every estate, however, abounding in timber and in stone for building, and great part of the country being on a basis of limestone rock or limestone gravel, facilities were readily afforded for a labourer to enlarge his cottage, and to add to it the necessary agricultural buildings. Scarcely any outlay was required from him but labour; and, as the produce was entirely for his own benefit, and for that of his family, his exertions were extraordinary. By degrees, cottage dwellings, of a somewhat improved description, and small farm-houses and farmeries, appeared in those parts of the country where the soil was most rich; not, however, detached, as in Britain, but chiefly congregated together in small villages. The system of culture did not, at first, improve as a system; but, the common operations of the established practice being more carefully performed, better crops were produced. Ultimately, however, the system became improved, in consequence of the operation of the national education that was established when the monasteries were put down; and by the teaching of agriculture and gardening, both by books and examples, in these schools. One of the first consequences was an improved rotation of crops. We have already enlarged on this subject in a preceding volume (Vol. IV. p. 494.), and have only further to observe, that almost the whole of the details of agricultural improvement in Bavaria have originated with M. Hazzi, an agricultural writer, and editor of an agricultural journal in Munich. The activity and patriotic benevolence of this gentleman are beyond all praise. It was chiefly through his exertions that a piece of ground was added to every parochial school in Bavaria, to be cultivated by the scholars in their leisure hours, under the direction of the master. In these schools, Hazzi's catechisms of gardening, of agriculture, of domestic economy and cookery, of forest culture, of orchard culture, and others, all small 12mo volumes, with woodcuts, sold at about 4*d*. each, are taught to all the boys; and those of gardening, the management of silkworms, and domestic economy, to the girls. Since these schools have come into action, an entirely new generation of cultivators has arisen; and the consequence is, that agriculture in Bavaria, and especially what may be called cottage agriculture and economy, is, as far as we were able to judge, carried to a higher degree of perfection than it is any where else in the central states of Germany: at all events, we can affirm that we never saw finer crops of drilled Swedish and common turnips, or finer surfaces of young clovers, than we observed along the roadsides in October and November, 1828. The fences, also, were generally in perfect order, and a degree of neatness appeared about the cottages which is far from common either in France or Germany. These remarks are not the result of observations made, as is frequently the case, from the cabriolet of a public diligence, but from deliberate inspection, and from entering many of the cottages and schools. To enable us to do this, we travelled, every where in Germany, in a private carriage, and never in the dark. We had also, as we have before stated, the advantage, while in Munich, of constant intercourse with M. Hazzi, M. Sckell, and other members of the Agricultural Society; with the chief engineer, Baader, who had been many years in Scotland; with Baron Eichthal, the proprietor of a large estate, on which he has introduced the Scotch husbandry, and with whom we were acquainted in London; and with his very intelligent tenant, an East Lothian farmer. The result of the whole of the information procured, and of the observations made, is, that we think the inhabitants of Bavaria promise soon to be, if they are not already, among the happiest people in Germany. The climate of the country will prevent its agriculture and gardening from advancing beyond a certain point; but to that point both will very soon be carried.

So desirous is the government of improving not only the agriculture, but even the face of the country, that they have a standing commission, consisting of counsellors, engineers, architects, and the landscape-gardener Sckell, solely for the purpose of devising improvements in the direction of public roads, canals, bridges, public buildings, and gardens, national forests, but, above all, for lining the public roads with trees. These trees are in some places, in the suburbs of towns, chiefly ornamental; in others they are fruit trees, or mulberry trees cultivated for the silkworm (a catechism on the management of which is also published by M. Hazzi); and, where nothing more profitable or ornamental will grow, forest trees. An extraordinary degree of attention is paid to the milestones and to the guide-posts, neither of which are wanting on any road. The guide-posts are generally painted black, with the letters in white or red, the black contrasting better with the snow, which in some parts of the country covers the ground for six months in every year. Some of the milestones have a bench of stone, forming a plinth or base around them, as a seat; others, where stone is not so plentiful, have a semicircular area of turf round them, bounded by a bench of the same material, as a seat, and planted behind with poplars or other trees. The neatness with which these turf benches, and the ditches or other fences, and also the grass margins by the sides of the roads, are kept far surpasses any thing of the kind which we have ever seen in Britain. With us, if any thing of this kind is met with in the public roads, it is chiefly the result of accident, either in the situation or circumstances of the road; or arises from the appointment of a road surveyor who happens to have at once some taste, and more than ordinary facilities for displaying it. In Bavaria, the whole is the result of design and system, the entire management of the roads being in the hands of the government. The same ought certainly to be the case in this country; for, otherwise, it is utterly impossible to adopt one general system of improvement.

The towns in Bavaria, and more especially those of larger size, are vigilantly attended to by the commission mentioned; partly because the present king has some taste for architecture and sculpture, and partly because architectural improvement tells more immediately than any other. New bridges, public buildings, churches, and palaces have been erected or repaired at Munich; and the public, when we were there, were complaining loudly of the enormous sums which were then being lavishly expended on two royal palaces. Unlike our own, however, they were at least in good taste, as may be seen by a view of one of them, which we have elsewhere given.* The truth is, the revenue of the country is too small for the consumption of immense sums in the erection of palaces, more especially while there is so much room for the employment of capital in the formation of railroads and canals. The Chevalier Baader has a magnificent plan for connecting Munich with the Rhine and the Danube, by means of a railroad; which would not have cost more than what has been laid out by the present king in erecting a gallery (*fig.* 109. p. 401.) for statues and sculptures, another of immense size for pictures, and two palaces; and in purchasing the statues, pictures, and furniture required to complete these buildings. These galleries and palaces may no doubt bring some travellers to Munich, but the railroad alluded to would have diminished the distance between France and Austria by one half; would have introduced the wines of Hungary to the British market, and would have enriched every part of Bavaria through which it passed. Such is the difference between the consumption of capital and the employment of it.

On the whole, Bavaria is, we think, the most interesting country in Germany, in point of cultivation and of civilisation. It has naturally the most severe climate of all of the German states, and yet it is decidedly far before any of them in gardening, and before most, if not all, in agriculture and cottage economy. Before the French revolution, it was sunk in ignorance and superstition to a greater degree than any of the German states, but it is now equal to the first of them in point of intelligence, moral worth, and happiness.

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* Encyclopædia of Cottage, Farm, and Villa Architecture, fig. 1661, p. 953.

(*To be continued.*)

Art. II. *Notices of the present State of Gardening in Sweden,* by Professor Agardh of Lund; *with a Plan of the Botanic Garden of Lund,* communicated by M. Petersen, of the Royal Gardens, Copenhagen.

[Professor Agardh, with whom we have corresponded for some years, having called on us at Bayswater during his late visit to England, we took the opportunity of showing him the pages of our *Encyclopædia of Gardening* which relate to the history of gardening in Sweden. These he took home with him, and returned them in a day or two with the following letter, which we give in the professor's own words; and cannot refrain, at the same time, from expressing our astonishment and admiration that a foreigner who, as he told us, had taught himself our language entirely from books, should be able, not only to speak it, but to write it, with so much correctness, and even eloquence.]

Sir,

In the middle of the last century, gardening was in high repute in Sweden. The nobility, especially those of the southern province, Scania, or, as you call it, Schönen, patronised it in all its branches, and sent young gardeners to Holland, in order that they might there perfect themselves in their art. This was partly owing to the practical direction which at that time all sciences had taken in Sweden, and partly to the spirit of the government; it then being in the hands of the political party generally called "Hats," whose grand object was to animate the industry and encourage the productions of the country. But that party having been, about the year 1766, overpowered by another party, called the "Bonnets," whose chief object was the saving of money, and, finally, liberty totally vanishing by the revolution of 1772, gardening, like all other industrious occupations, by degrees died away, and is now only perceptible in the few remnants which still exist of its former encouragement. Among these remnants, the culture of the noble fruits, as of pine-apples, peaches, apricots, in the greater gardens of Scania, is so extensive, that a surplus, not consumed by the families in the possession of the gardens, is every year offered at the markets of the neighbouring towns, often in greater quantities than can be sold.

A branch of gardening, which was highly encouraged during the period when that art was at its zenith, was the culture of the white mulberry tree for feeding silkworms. The party above alluded to under the name of "Hats" made the most strenuous efforts to introduce this species of industry in Sweden. Many thousand trees were planted in Lund; silkworms were bred in great quantities, and the silk produced was found excellent for fabricating the different articles usually manufactured from it; the culture had, indeed, every prospect of success to a very great extent, when, in a moment, the party called the "Bonnets," making themselves masters of the helm, struck this as well as all the other efforts of national industry with destruction and death. The mulberry trees were not even permitted to remain in the ground, where already an Italian landscape was extending itself before the eyes of the wondering traveller; they were, in a Vandalic manner, eradicated, to make room for corn, and the few left were only those in the botanic garden and in private plantations. These still remain, and bear witness to the union, in the former party, of widely extended views for encouraging articles of commerce and industry, to increase the power and resources of the nation, with a kind and benevolent wish to promote the happiness and prosperity of the people. At a later period, the culture of the mulberry tree has been renewed under high protection; and if these trees can be made to prosper in Scania, the only province where they can thrive without being exposed to the dangers of severe winters and late springs, we hope they may be grown with success, provided the establishments connected with them be combined with other public institutions, and protected by judicious laws.

The good intentions for promoting gardening, which you have attributed, in your *Encyclopædia*, to the "Swedish nobility," or, more correctly speaking, to the Swedish proprietors (the ground in our country being equally open to nobility and other citizens), have lately been partly carried into execution, through horticultural associations (one for the northern and the other for the southern provinces), which have been established, and encouraged with the utmost zeal. The crown prince of Sweden, being the Chancellor of the University in Lund, has given the use of the botanic garden of this university to the southern horticultural association, and has thus united scientific instruction with useful practical application. This association has also connected itself with the greatest nursery in Germany, that of M. Booth, in Hamburg (a man who maintains his reputation in the most liberal manner, and seems to desire more the encouragement of the most innocent and most delightful branch of human luxury, than his own gain); and in this manner has endeavoured to lay the basis of a sure and durable influence.

The northern association, which has its centre in Stockholm, was established by the highly esteemed Pontin, physician to the king, and has, in the greater wealth of the metropolis, and in the multitude of its members, a counterbalance against a rude climate and a less advantageous situation.

From these facts it will appear evident that there is every reason to hope that Sweden will one day partake in the general interest for gardening, which, during the last century, has arisen throughout the whole of Europe, and which now forms the finest bloom of civilisation. If Sweden has hitherto been backward in this respect, it is to be ascribed to circumstances which it has not been in the power of private persons to counteract, but which will ultimately give way to a better public spirit.

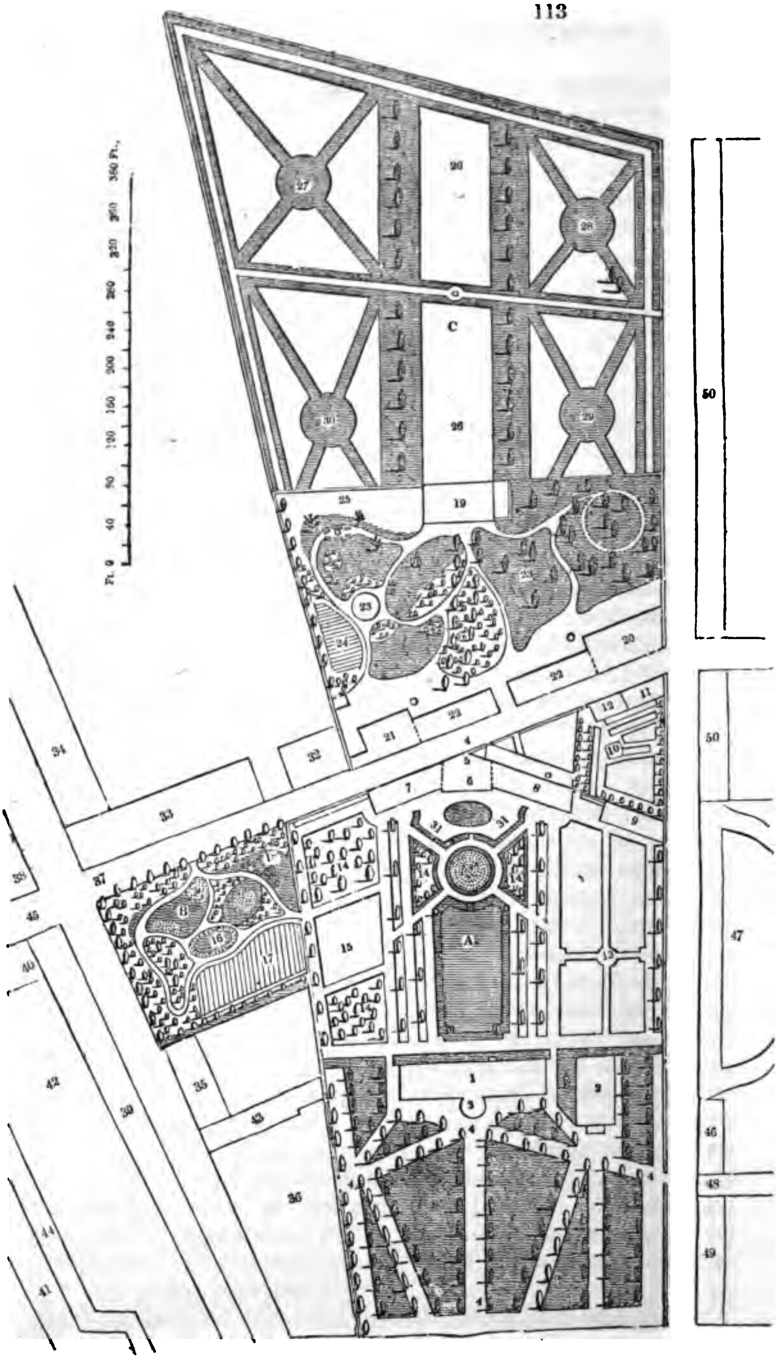
It has often been remarked that the English style of gardening is not so generally adopted in Sweden as in other countries. This must be ascribed to the high and picturesque beauties of the country itself; as all that art could produce in Sweden would be surpassed by nature, and the exertions of human invention would be only a caricature of her divine sublimity.

It was to me very surprising, and in the same moment very pleasing, to find in your *Encyclopædia* a plan of the garden of Lund, very correctly laid down. You have very kindly attributed the inferiority of this garden to the small sum allowed for its support, which is, in fact, still less than you supposed. I hope that, partly by its connection with the southern horticultural association, and partly by the care of the present gardener, M. Lundbuz, this garden will now commence a new era of developement; and that I, hereafter, may be able to send you accounts of increasing interest taken in gardening, and of the improvement of horticulture in Sweden, spreading from this once insignificant garden.

I am, Sir, yours, &c.

C. A. AGARDH.

Newton's Hotel, Leicester Square,
London, May 16. 1833.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[The plan alluded to above (*fig.* 113.) was sent us, together with the following description, by our correspondent, Mr. Jens Peter Petersen, of the Royal Gardens of Copenhagen.]

The Botanic Garden of the University of Lund was founded in the first half of the eighteenth century. Its professors and directors have been Andrew Lidbeck, A. J. Retzius, and the distinguished C. A. Agardh. The gardener, in 1826, was O. J. N. Mörch; but is now M. Lundbuz. The garden contains about two and a half English acres; the soil is a mixture of gravelly clay and mould; and the surface is somewhat irregular. The following are its details: —

A, The botanic garden. B, The new arboretum.
C, The plantation.
1, Old academy. 2, New academy.
3, The astronomical observatory.
4, Vestibule to the academy.
5, Anatomical theatre over the same.
6, Conservatory. 7, Stove.
8, Gardener's house. 9, Conservatory.
10, Conservatory. 11, Stove.
12, Lecture room.
13, Arrangements of herbaceous plants, according to the natural system.
14, Arrangement of trees and shrubs.
15, Annual plants. 16, New arboretum.
17, Medicinal plants.
18, Rockwork, or lapidarium.
19, Old infirmary. 20, New infirmary.
21, Lying-in hospital.
22, Storehouse and kitchen for the lying-in hospital.
23, Place of exercise for invalids.
24, Garden of medicinal herbs for the hospital.
25, Area for gymnastic exercises.
26, Campus experimentalis (field for trying experiments).
27, Seminarium (seed place).
28, Pinetum (various species of pines).
29, Acerinum (various species of acers).
30, Fruticetum (a collection of shrubs).
31, Hedge of box, 6 feet broad at the base, and 6 feet high.
32, The house of Professor Agardh.
33, 34, 35, Private houses.
36, Square called Little Square.
37, Street called Broad Street.
38, Churchyard, now a garden.
39, 40, 41, Private houses.
42, In the direction of 42 is another house belonging to Professor Agardh.
43, Private house. 44, 45, Streets.
46, 47. House and garden of the Academical Association.
48, Street. 49, Bishop's house.
50, Private houses.

It has been remarked that the box thrives here remarkably well; there being hedges of that shrub upwards of six feet high. The tender plants are said to thrive here better than in the garden at Copenhagen. The herbaceous plants are arranged according to Professor Agardh's *Aphorismi Plantarum;* each genus being planted by itself. There are a good many species of trees and shrubs, though but few North American plants. The green-houses contain the plants of the South of Europe; but few natives of the Cape, or of New Holland. The most remarkable plants in the stoves are the banana and the date. The hot-houses are heated by German stoves, in which wood is burned as fuel. The garden has no library, herbarium, or collection of seeds; nor is this to be wondered at, when it is considered that the entire expense of the establishment, including the gardener's salary, seldom exceeds 50*l.* a year. The total number of species in this garden, in 1829, was 2300. An arboretum was planted there by M. Mörch, and also a shrubbery in the English style. A good many white mulberry trees had been propagated, with a view to the culture of the silkworm; but the severe winter of 1798 destroyed most of the trees, and the culture has been given up. The worms were reared in the orangery in the botanic garden; some silk cloth was made, and a fragment is still kept in the museum at Lund, of a piece of it which was presented to the queen. No attempt has been made to renew this plantation, which is now occupied by trees of the *A*cer Pseùdo-*Plá*tanus, introduced into Sweden from Holland, in the year 1770.—*J. P. P.*

ART. III. *Some Account of a Floral Fair held at Marseilles in January,* 1833, *with a List of the Plants there exhibited for Sale.* By VIATOR.

Sir,

ON passing through Marseilles, I was recommended to attend a sort of floral fair, which is annually held on St. Antony's day (the 17th of January), in the Place des Prêcheurs, but which this year had been transferred to the Place Noailles, and the adjacent boulevards. St. Antony's day has been set apart for this purpose, as falling about the time best suited for the planting out of seedling onions, which are brought in great quantities, principally from the little town of Auriol, to this fair, instituted, probably, in early times, solely for the sale of this vegetable. Another fair, said to be still more considerable, is held on the public walk called the Cours, on the *Jour des Rois*, or Twelfth Day; but which, I regret, I was unable to attend. From ten to twelve thousand trees, of different sorts, are disposed of at these two fairs. Much other agricultural and horticultural business is transacted; the nurserymen vie with each other in the quality and variety of their collections, and the honest citizens of this great town provide themselves with flowers and plants to decorate their alcoves and verandas. A description, therefore, of that which I attended, will give you a general idea of the state of horticulture around the capital of Southern France.

Armed with a pencil and paper, I carefully noted down all the species of plants which were offered for sale, the prices of the principal articles, and such other observations as I was enabled to make. The list which I append cannot pretend to be a catalogue of all the species cultivated in Provence, but merely of those more usually in demand; and, as such, is indicative of considerable taste for horticultural embellishment, though scarcely so much as might have been expected in an opulent and flourishing community like that of Marseilles.

My expectations were not greatly raised. I was, therefore, agreeably surprised, both by the variety and the distribution of the plants on sale. In the lower part of the fair were disposed the more delicate and exotic vegetables; above these, the hardy and ornamental shrubs and trees; and on the boulevards were assembled the stems of olive trees and mulberries, and trunks of elms and other forest trees in *faisceaux* [bundles] of various sizes and forms. This disposition, ordered by the mayor, was the more remarkable, as the ground gradually rises from the Place Noailles to the boulevards.

Some of the hardy plants and trees were in moderately good order, but many had, doubtless, never been moved since their first transplanting from the seed-bed; and some of the indigenous species, as *P*ìnus halepénsis, Globulària Alýpum, and others, had evidently been extracted at once from the woods and heaths. In general, the roots were in the worst possible state for planting; many, even, had been carefully washed and cleaned; yet the venders were indignant at my doubts as to their growing on replantation. The appearance of the exotics marked likewise a degree of cultivation by no means advanced. The succulent plants were in a state of hydropsy, and the rest phthisical and unhealthy. I regret, for the honour of Marseillois gardening, to be obliged to confess that the best collection, both as to the health, variety, and rareness of the species, had been brought by sea from Genoa.*

I proceed to the particular description of the articles. Fine elms from 8 ft. to 10 ft. high and thick in proportion, fetched about 20*d.* sterling each. They were all grafted close to the root with quick-growing and elegant varieties, and were principally destined for public walks and avenues. The nurseryman, for a small remuneration, insures their existence for three years. This is usual for the public walks, which, when created or renewed, are farmed from the town-councils by some neighbouring nurseryman. He engages at the same time to prune the trees, and the product of the pruning is sent to the hospitals. These trees are better pruned in the south than in the north of France, which I attribute to the experience acquired in the annual and systematic dressing of the olive trees and mulberries.

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* The backwardness of the south in comparison with the north of Europe, both in the science and the practice of gardening, is a fact not to be denied. From this general condemnation I must, however, except the Genoese, and perhaps the Catalonians, as far as regards culinary horticulture: but, in all these countries, too little attention is paid to the varieties of the fruits they cultivate; they are mostly of a very inferior character.

The branches are amputated close to the trunk, and the wounded part is well chiseled and smoothed, and sometimes painted. They appear to me, however, to lop too much, and to exaggerate the system recommended by Pontey. This custom they excuse under the necessity of giving air and light to the roads and walks; but, on this account, one rarely or never sees majestic avenues like that of Christ Church at Oxford, and some others in Britain; and such as, I trust, our descendants may see, should the frequent exhortations you have so wisely given in your earlier Numbers produce the effect which they ought to have produced on the present generation. But I return to my subject matter. The roots of these trees were cut close to the stem, and their heads entirely taken off. Notwithstanding this process, I have seen them sprout with vigour when replanted; and it is, I am told, rendered necessary by their having remained so long untransplanted. This statement will apply to most of the forest trees noted in the list.

Scotch pines [*P*ìnus sylvéstris], 3 or 4 ft. high, fetched about 1*s*. each. There were but few plants, as the climate is not congenial to this tree. The Aleppo pines [*P*ìnus halepénsis] were much more common, and sold, according to their size, from 2*d*. to 8*d*. each. For *J*uníperus virginiàna they asked 1*s*. 6*d*. Fine white mulberries [*M*òrus álba] from 6 to 10 ft. high, were marked at 3*d*. or 6*d*. each; in larger quantities they may be had still cheaper. The cultivation of this tree and the rearing of the silkworm form one of the chief resources of the department, and have been greatly encouraged and extended of late years. The council-general offered a premium of 3½*d*. for each tree planted; and it appears, that, during the years 1820, 1821, and 1822, the reward was claimed for upwards of 12,000. Many are exported: in 1825, 50,000 large and 150,000 smaller trees were shipped for Cork, in Ireland. [For some notice of these trees, see Vol. I. p. 339.]

Large olive trees, 5 or 6 ft. high, with large *tronçons* at their roots, cut in the same manner as the elms, with the exception that they had usually small heads left, fetched from 1*s*. to 2*s*. each. They had been raised from the stems of trees cut down much after the fashion described by Virgil in his *Georgics*. This valuable tree, though cultivated in Provence long before our present era, is frequently destroyed by frosts. Scarcely a tree survived the frost of 1819-20.

Good-sized lemon and orange trees fetched about 1*s*. 6*d*., smaller-sized 1*s*. 3*d*. Great importations take place from Genoa, and large plantations have been created in this neighbourhood; but as yet Hières and Nice are the only spots where these delightful trees flourish, between the Alps and the Pyrenees.

For the rarer green-house plants in the list they generally asked from 1*s.* to 4*s.* Large plants of *Pæònia* arbòrea [*Moútan*] sold for 8*s.*; smaller plants fetched 4*s.*; Echevèr*ia* coccínea, 7*d.*; *C*ássia tomentòsa, large plants, 1*s.* 3*d.*; jasmines, 2½*d.* to 5*d.*; and so in proportion.

I have since visited some of the nurseries: they are of very small extent. It is calculated that all the nursery grounds in the neighbourhood of Marseilles do not exceed three hectares and a half, or about seven acres.* The most conspicuous is that of M. Rougier, who has a small hot-house and green-house, and cultivates some rare species. From want of space, he propagates but few plants, renewing his stock from the nurseries at Lyons. The only collection of any merit is that of the Count de Feliz. After this comes *La Fleuride*, formerly a fine establishment, but the pleasure grounds have lately been converted into an orange garden by its present possessor. The Marquis of Cavagnac has an elegant garden at St. Marthe; and the ancient parks of the Aygalades; Gemenos, the property of the Marquis of Albertas; and the Château Borelly, remains of the magnificence of former times, contain some fine trees, and merit a visit. The bastides, or country-houses of the commercial aristocracy, show as yet but little evidence of good taste. There is a lamentable backwardness in knowledge even amongst the upper classes of the southern French; and the culture of the soil will doubtless profit by its future extension amongst all ranks.

Should this communication appear to you of sufficient interest, I shall be happy, at some future time, to send you a sketch of my visit to the experimental garden of the celebrated author of the *Pomona Italiana*, Count George Gallesio, at Finale, and of the great nursery establishment of MM. Audibert, at Tarascon. I am, Sir, yours, &c.

Marseilles, February 15. 1833. VIATOR.

[We shall be extremely obliged by the proposed communications on the very interesting gardens alluded to, and wish much that the author of the above excellent paper would favour us also with some notices of the gardening and botany of Spain, and of the other countries from which he has sent home so many new and beautiful plants during the last six or seven years. — *Cond.*]

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* See the excellent *Statistics of the Department of the Mouths of the Rhone*, by the Count de Villeneuve.

Catalogue of Plants exhibited for Sale, on January 17. 1833, in the Place Noailles, at Marseilles.

h, Hardy plants; *g*, green-house plants; *i*, indigenous plants.

*A*ˋbies pectinàta, *h*; excélsa, *h*; and álba, *h*.
*A*càcia farnesiàna, *h*; lophántha, *g*; longifòlia, *g*; and *Julibríssin*, *h*.
Agàve americàna, *h*.
A´löe vèra, *h*.
Aloýs*ia* *c*itriodòra, *h*.
A´rbutus *U*ˋnedo, *h i*.
*A*mýgdalus commùnis, *h*; armenìaca, *h*; and *P*érsica, *h*.
*A*rtemís*ia* argéntea, *g*.
A´triplex *H*álimus, *h i*.
*B*úxus sempervìrens, *h i*; and baleárica, *h*.
Caméll*ia* japónica, *g*.
*C*ássia tomentòsa, *g*.
*C*érasus Laurocérasus, *h*.
Cèreus flagellifórmis, *g*; triangulàris, *g*; and peruviànus, *g*.
*C*ércis *S*iliquástrum, *h i*.
*C*ìtrus *M*édica, *h*; and Aurántium, *h*.
Cinerària *p*latanifòlia [? *p*opulifòlia], *g*.
Cæsalpín*ia* *Sáppan*, *g*.
*C*neòrum tricóccum, *h i*.
Coronílla glaúca, *h i*; and stipulàris, *h i*.
Corræˋ*a* álba, *g*; and speciòsa, *g*.
*C*órnus máscula, *h i*.
Cobœˋ*a* scándens, *g*.
[?] Chœnómeles japónica, *h*.
*C*ýclamen europæˋum, *h i*.
Crássula láctea, *g*.
*C*ýtisus *L*abúrnum, *h*.
*C*upréssus sempervìrens, *h*.
Diánthus *C*aryophýllus, *h*.
*D*áphne odòra, *g*.
Echevèri*a* coccínea, *g*.
*E*rìca mediterr., *h i*; arbòrea, *h*.
Eriobótrya japónica, *h*.
*G*enísta monospérma, *h*.
Georgì*na*, tubers of several kinds, *h*.
Globulària Alỳpum, *h i*.
*G*nídium *p*inifòlium, *g*.
Gymnócladus canadénsis, *h*.
*H*édera *H*èlix, *h i*.
*H*elléborus nìger, *h*; and víridis, *h i*.
Houstòn*ia* coccínea, *g*.
*I*ˋlex *A*quifòlium, *h i*.
*J*asmìnum odoratíssimum, *g*; and officinàle, *h*.
*J*ùglans règia, *h*.
*J*uníperus *O*xýcedrus, *h i*; and virginiàna, *h*,
Lonícer*a* perfoliàta [? gràta], *h i*; and japónica, *g*.
*L*ílium cándidum, *h i*.
*L*aúrus nóbilis, *h i*.
Lilac vulgàris, *h*.
*L*àrix *C*èdrus, *h*.
Medèola [Myrsiphýllum] *a*sparagöìdes, *g*.
*M*èlia *Azedarách*, *h*.
Melocáctus commùnis, *g*.
*M*òrus álba, *h*.
*M*ýrtus commùnis, *h i*.
*N*arcíssus incomparábilis in flower, and bulbs of other species.
*N*èrium *O*leánder, *h*.
O´cymum *B*asílicum, *g*.
*O*ˋlea europæˋa, *h i*.
*O*púntia vulgàris, *g*.
Passiflòra cærùlea, *h*.
Pelargònium zonàle, *g*; tríste, *g*; and several other species.
*P*hasèolus *Caracálla*, *h*.
*P*hœˋnix dactylífera, *h*.
*P*istàcia vèra, *h*; *T*erebínthus, *h i*; and *L*entíscus, *h i*.
*P*ỳrus commùnis, *h i*; and *M*àlus, *h i*.
*P*ùnica *G*ranàtum, *h i*.
Quércus *I*ˋlex, *h i*.
*R*anúnculus asiáticus, *h*.
Raphiólepis índica, *h*.
*R*hámnus *A*latérnus, *h i*.
Rìbes rùbrum, *h*.
*R*òsa, various varieties and species.
Robíni*a* Pseùd-*A*càcia, *h*; and híspida, *h*.
*R*osmarìnus officinàlis, *h i*.
*S*tátice Armèria, *h i*.
*S*álvia officinàlis, *h i*.
Sáccharum officinàrum, *g*.
*T*ámarix gállica, *h i*.
*T*áxus baccàta, *h i*.
*T*hỳmus vulgàris, *h i*.
*T*ília europæˋa, *h i*.
*T*hùja orientàlis, *h*.
*V*ìola odoràta, *h i*; and trícolor, *h i*.
*V*ìtis vinífera, *h*.
*V*ibúrnum *T*ìnus, *h i*.

ART. IV. *Observations on several Gardens in England.* By Mr. WILLIAM SANDERS, Nurseryman, Bristol.

(*Continued from* p. 17.)

JULY 15. 1832. — *Longleat*, the very magnificent seat of the Marquess of Bath, is situated a few miles south-west of Warminster. The drive to Longleat from that city is of a highly rural character; and, on emerging from it, the eye is enchanted by the view of a spacious plain, of gently undulated surface, and immediately below stands the princely mansion, on every side rich with picturesque scenery; to the right stretches a lucid sheet of water, backed by a fine plantation; and the beauty of the whole is greatly enhanced by the wide extent of the domain, which bestows on it much such a character as comports with our ideas of nobility. A neat and well-kept flower-garden, laid out in the Italian style, adjoins the mansion; and in its centre, immediately fronting a large orangery, stands a marble vase, nine feet in diameter, which, if my information be correct, once adorned the imperial city of Rome. At pleasure, a jet d'eau throws up its refreshing showers, and imparts, in a summer's evening, a delicious odour to the surrounding atmosphere. A short distance to the west, and closely connected with the mansion, stands a splendid pile of buildings, appropriated as stables and offices, well assorting with the magnificence of the house The kitchen-garden is removed, perhaps inconveniently, far from the house; but this is preferable, in my mind, to the situation in which it is too frequently found. A rather awkward site has been chosen for it, as it occupies the two sides of a valley, running from north-east to south-west. It is, however, well sheltered on all sides by fine woods. To the south it is more thinly studded with trees; good substantial walls enclose the whole; but the wall trees appear to have seen their best days. The soil is of a stiff nature, not very congenial to the growth of early vegetables; but, as a compensation, it will withstand the summer's drought. The hot-houses, which had become old and decayed, were, when I saw them, being replaced by structures of a more elegant and useful character, under the superintendence of the gardener, Mr. Acon. Behind the houses, an excellent row of sheds was also in course of erection, well adapted for the various purposes for which they are intended. The orderly keeping which pervaded the many drives, reflects much credit on the several individuals who superintend the estate.

On leaving Longleat, I made the best of my way towards

Stourhead, the peculiarly rural seat of Sir R. C. Hoare, replete with fascinating scenery. The gardens are confined to a narrow compass, and chiefly excel in possessing a very numerous and splendid collection of pelargoniums, Sir Richard appropriating several houses solely to them. Among them are many varieties of his own raising, and none are admitted but the more rare and curious kinds. A drive extends from the mansion, for upwards of two miles, along the top of a ridge, forming one side of a valley; it passes an obelisk erected to the memory of some former possessor, and terminates with a tower bearing the name of the patriotic Alfred. Tradition represents this as the spot where he planted his victorious standard on his final conquest of the Danes. From the top of this tower an extended view of country presents itself, comprising part of Dorsetshire, Somersetshire, Gloucestershire, and Wiltshire, with the Welsh hills in the distance. Nearly at the top of the valley rises a spring, which forms the head of the river Stour. At some distance below, the river is stopped by means of a dam, and forms a goodly sheet of water; both sides of the vale are clothed thickly with timber and underwood.

July 17. — On returning to Warminster, I called at *the residence of* —— *Phelp, Esq.* The flower-garden here is a perfect little paradise; seemingly combining every thing which art, coupled with good taste, can unfold of the beauties of nature. Flora has here an ardent admirer, and her productions an assiduous cultivator. The arrangements of the flower-beds appear far more judicious, and the plants more appropriately assorted, than is frequently the case. Mr. Phelp spares no reasonable expense in procuring whatever is new and rare; thereby adding to the interest, while he enhances the beauty, of his place. Nor is he the less attentive to the interests of horticulture among his neighbours, but generously contributes his support and influence to the neighbouring horticultural societies. May I venture a hope that such an example will not be lost?

On the afternoon of the same day, I called on *Mr. Wheeler, Nurseryman, Warminster.* This nursery comprises a good collection of herbaceous plants. Several new varieties of Calceolària have been produced by Mr. Wheeler, and he has now several that have not yet flowered, which, he thinks, promise well. His general collection of exotic plants looks remarkably healthy: in rearing camellias from cuttings and otherwise, Mr. Wheeler merits great credit. A very neat and cheap form of pit, for the protection of half-hardy plants, was in course of erection: the roof is in the form of a capital A, the walls are about one foot high, and the lights are glazed with small squares of glass, which cost in Bristol, ready cut, one penny each; the width of the pit is about five feet, and the roof is glazed on both sides.

I am, Sir, yours, &c.

Bristol, Feb. 28. 1833. W. SANDERS.

(*To be continued.*)

ART. V. *On the Advantages which would result from Gardeners not being compelled to work longer on a Saturday than Artisans.* By SCIENTIÆ ET JUSTITIÆ AMATOR.

Sir,

THE system of oppression under which the labouring population has so long groaned is so firmly established, and blended so intimately with all the relations by which man stands connected with his fellow man, that an attempt to strike boldly at the root of evils, and tear up at once the tree of corruption and tyranny, would rather tend to increase than remedy our grievances, as such a step would be apt to lead to the total disorganisation of society. We must, for the present (as the surest method of finally attaining our object), content ourselves with lopping off some of the most obnoxious boughs and twigs, so that, by a steady perseverance, we may at length have our tree renewed in its branches, or engrafted with scions of a more prolific nature, and better calculated for promoting the solid enjoyments of mankind. The grievance to which, at present, I wish to call your attention is one of so trivial a nature, that, so far as I am aware, it never has been adverted to by any of your correspondents; and yet it appears to me to possess peculiar odiousness, principally on account of the invidious distinction which it sanctions between the different orders of the working classes; being an evil confined to the gardener and the labourer, and from which the more favoured artisan is wholly free.

In reading that part of the *Encyclopædia of Gardening* where you show the advantages and time which the young gardener possesses for mental cultivation, you state that the longest period he has to labour is ten hours per day; while you must be aware that, through the greater part of England, the period of labour is ten hours and a half, half an hour only being allowed for breakfast. This custom is prevalent among mechanics, as well as among gardeners and labourers;

but mark the difference: as an equivalent, the mechanic either has his half hour for tea every afternoon, as is often practised about London, or he leaves off working at three or four o'clock on Saturday afternoon; while the gardener and labourer must continue to work on to the usual period on that day as well as on the others. Why, in this respect, make such a difference betwixt the mechanic and the labourer? Why give to the one privileges which are withheld from the other? While manufacturers, &c., have had their periods of prosperity and adversity, a constant succession of hardships has long been the fate of the agricultural labourer. When any class of artisans, &c., is depressed in circumstances, the country resounds with the intelligence, petitions are poured into Parliament on their behalf, and subscriptions are entered into to relieve their present necessities; but, notwithstanding the continued hardships of the humble labourer's lot, how few have endeavoured to improve his condition! No beam of light, as a messenger of hope, has darted through the gloom which overshadows his path; but, lost, bewildered, he sinks into apathy and indifference, and becomes regardless of a life which is attended with so much misery and oppression. In a great number of instances, the only happiness which the labourers possess, and which renders their life at all endurable, seems to be derived from their belief in a future state of existence, where they will be set free from their troubles and their woes, and enjoy an uninterrupted tranquillity and repose. I hope you will excuse this seeming digression, as I revert to the subject more immediately in question.

It must, at the first glance, be apparent, that many advantages would be the result of placing gardeners and labourers, in respect to their Saturday's work, upon an equal footing with mechanics. The young gardener would then have many opportunities of visiting places, &c., which at present he cannot accomplish. In many establishments a young man cannot get away part of a day without his pay being stopped, which his pecuniary circumstances often make him ill able to afford. Sunday is the only time he possesses for knowing what is doing around him, and, resolved to make as much as possible of one day, his tours for improvement often turn out a very laborious toil, instead of a pleasant recreation. The possession of the Saturday afternoon would be a very valuable acquisition, especially to those who, from conscientious motives, do not feel inclined to make a practice of travelling upon the Sabbath. Besides, a young man might enter into an agreement with his master, that, by working a certain number of Saturday afternoons, he might obtain a day to himself, when he required it, without injury to any of the parties. To the common labourer the introduction of such a system would be of very great importance. Instead of having, as at present, often to wait for his wages until a considerable time past six o'clock, which prevents him from going to market until late at night, or upon the following morning; forced often to purchase inferior articles without any reduction in price; he would arrive at home in time to enable his wife to provide to most advantage the provisions for the ensuing week. Then, if not inclined to visit any other place, having received a refreshing beverage, the consciousness of the sweet cessation from toil which he will enjoy upon the following day causing him to forget his former fatigue, he might go out into his little garden, "with his wee things toddling around him," and doing what they can to promote the general weal; and there nobly exert himself to have every thing in the highest order and perfection; while he would experience a delight in viewing the beneficial effects of his labour, which the tippler at the alehouse, who neglects his home, even in the brightest moments of his insane enjoyment never can experience. It is quite astonishing what even a tired man will accomplish, when he reflects that himself and family will derive the sole benefit of his labours. Why, then, stifle this spirit, apparently of selfishness, but in reality founded on the noblest principles, the desire of being independent of the charity of others, by depriving the labourer of time, the possession of which to him would be of so much importance? Much do we hear at present about the better observance of the Sabbath, by preventing all sorts of labouring and trafficking upon it; but, when we examine the subject, we shall find that, in a great many instances, the practice is followed, not from the volition of the parties concerned, but that it is purely the result of necessity. Not to enter into a discussion upon this subject, one desire must predominate in the minds of all who wish well to the labouring population; namely, that all of them may at least have the means of abstaining from bodily toil upon a day set apart as a period of sacred rest. If once the practice became prevalent, of allowing the poor man to work on Sunday, he would soon receive no more remuneration for working seven days, than at present he does for six. On the other hand, if the practice were to work only five days, the remuneration would still be the same. The rich man can make a Sunday of rest whenever he chooses; the Sabbath has, with much propriety, been styled "the poor man's day," and little need has he to be deprived of any of his privileges. Enable the poor man to perform his necessary duties on the Saturday, and few will be so very fond of toil as to labour on the Sunday.

It was with much pleasure that I lately perused several communications in this Magazine, the design of which was the amelioration of the state of the labouring classes, and which were sent by gentlemen, whose labours and example may be productive of the greatest benefit. Let them show that they really wish to put the poor man in possession of his rights, by immediately redressing his grievances, however trifling these may appear to be. Those philanthropic gentlemen who, regardless of the customs prevalent around them, will break through every fostered prejudice, and do what they can to elevate degraded humanity, may be laughed at, reviled, and even opposed, by some of their neighbours, who wish us to remain degraded and ignorant as we are; but they may rest assured that their benevolent exertions will be duly appreciated by a discerning public, and their names will be long hailed as those of the benefactors of their species, and the enemies of oppression, in every cabin and cottage of our land, the inmates of which have acquired the power of knowing right from wrong; when the names of heroes, conquerors, and crafty politicians, that once operated as a potent charm in arresting the admiration of mankind, shall have mixed with the generations of by-gone ages, and along with them be rolled down the stream of oblivion; and, what is most encouraging of all, they will experience, in their own bosoms, those truly enviable sensations which an approving conscience ("*mens sibi conscia recti*") never fails to inspire.

We do not advocate the adoption of this system as a practice that has never been tried: it has long been generally prevalent in the northern counties of England. There, every gardener at a gentleman's establishment, even those connected with the forcing department, quits his labour on Saturday at four o'clock in the afternoon, and every labourer, wherever employed, does the same. As I have never resided in that part of the country, I will not attempt to give you a description of the effects of such a practice. I will merely mention what I have often been told by a very intelligent young man, who laboured two years in a gentleman's garden in the county of Durham; namely, that his master was so convinced of the beneficial results of giving a degree of relaxation to his men, that they uniformly left their work at five o'clock in the afternoon, and on Saturday at three o'clock; and the effect of this practice was, and is, that the place is so celebrated for its high keeping and good management, that a saying has been rendered current in the neighbourhood, that if the gentleman found a weed upon the premises, he pulled it up, and brought it to the gardener's door. Such a fact speaks volumes, and requires no comment. In taking leave of this subject, I cannot but earnestly entreat that some of your patriotic readers in the counties of Northumberland and Durham would shortly send you some communications, not only confirming the truth of the existence of this practice, but also showing its influence in extending the happiness and improving the moral condition of the people. No one can set limits to the amount of good which a few such communications might be the means of accomplishing, and surely nothing can be more honourable, and nothing more worthy of man, than doing good to his fellow man. These efforts may not be crowned with immediate success, and oppression and injustice may still remain our fate; but sure I am that those who have been employed in such a benevolent undertaking will find the consideration that they have attempted, at least, to elevate humanity from its present degradation, and to lessen the bitterness of the ingredients in the cup of human woe, infuse such pleasing reflections into their minds, as will prove more than a tenfold compensation for the little trouble which their exertions may cost them. Once more craving their assistance, I am, Sir, yours, &c.

SCIENTIÆ ET JUSTITIÆ AMATOR.

Staffordshire, March 27. 1833.

P. S. The general period for labour throughout Scotland is only ten hours per day. As the labourer there, as well as in England, is often employed at such a distance from home, that he is obliged to carry all his provisions for breakfast and dinner along with him, the practice of taking only half an hour to breakfast, provided he received the Saturday afternoon in exchange, would tend much to increase his comforts, and prove a great means of introducing a taste for gardening, to which comparatively very little attention is paid. Much good might be effected by gentlemen raising a spirit of emulation, by giving small premiums; and desiring their gardeners to instruct the cottagers in the neighbourhood how to raise many vegetables which are found very profitable by the English labourer, but which have but in few instances found their entrance into the "kail-yards of auld Scotland."

Art. VI. *On the Professional and general Improvement of Young Gardeners.* By A Young Gardener.

Sir,

It must be pleasing to every reader of your invaluable Magazine, to behold so many persons interesting themselves in the improvement of young gardeners. Youth is, indeed, a learning season; for then the mental powers are unclouded by those cares which crowd upon maturer years, and unfit the mind for contemplation and improvement: and if this be the case; if the young can make the most rapid advances in knowledge; if the season of youth be hurrying on, and, like the morning sun, rapidly passing away; surely those who are in the morning of life ought to allow no opportunity to pass unimproved; knowing, as they must, that, if once lost, it will never return. The improvement of every young gardener depends much upon himself, and much upon the disposition of others. He has much to do; the field is wide; and, unless he is anxious to cultivate his mind himself, he cannot expect others to drag him forward against his inclination. Many of the means for improvement are within his own reach, and books, the foundation of knowledge and couch of literature, should be his frequent study. Writing essays on different subjects is also very useful; as, by this means, he is not only compelled to retire into the chamber of his mind, and excite that which would otherwise remain in a state of inaction, but he is enabled to express himself freely on any subject which may be brought before him. Above all, he should pay particular attention to what is going on around him, in the garden or in the field, in the shrubbery or in the forest. The improvement of every young gardener depends much upon his employer. Not to speak of low wages, which always form a barrier in the way of his acquiring knowledge, the lodges in which he dwells are often so small as to render him very uncomfortable, and to prevent his fully profiting by the short leisure which is afforded him. Even in the vicinity of modern Athens [Edinburgh], that noble city, whose beautiful buildings have attracted the notice and excited the admiration of all who have beheld them, gardeners are to be found living in sheds, having only one room, and that of small dimensions. I cannot think that this is altogether the fault of the gentlemen who employ gardeners. I cannot think that those who live in splendid mansions, containing numerous suites of rooms, and who have all the comforts which this world can afford, would consider a small apartment of only a few feet square as a fit habitation for a number of beings of the same species with themselves, were they to give the matter one single thought, or were it to be explained to them. But that such is the case is an undeniable fact. I would not wish to go to extremes, but I really think that gardeners ought to have at least two rooms for their use; and there can be no doubt that such accommodation would materially accelerate their improvement. In every lodge where there are a number of young men, they are always engaged in different pursuits: some may be studying arithmetic, or writing, reading, drawing, or the like; while others may be improving themselves in music, or talking on different subjects. Now, this is all very good and very proper; but it must appear plain to every person that all of these employments cannot go well on in one small room, and that arithmetic and music are not very agreeable companions. Many other examples might be brought forward to prove the benefit which would arise from better accommodation, but this may suffice for the present.

The improvement of young gardeners depends much upon the head gardener; and I might here show the evil effects which arise from master gardeners engaging too many apprentices; which, although it may be gain to themselves, must injure those who wish employment as journeymen. But I will not enlarge upon that at present. I am sorry to think that there are so many who seem to forget what they once were, and who appear to consider themselves above giving instructions to those who are under their charge. They have much in their power; as their wages, in general, are such as enable them to purchase books on gardening and botany, which, if lent to the young gardener, would effect much good. These books are so high-priced, that they are quite beyond the reach of many to procure them, and there are so few circulating libraries which contain books on such subjects, that, unless those who are able be also willing to lend, those who are unable to purchase books must remain ignorant of their valuable contents. Almost every young man has a desire for improvement, and almost all wish to acquire a thorough knowledge of their profession. When they are encouraged and assisted by their masters, this desire is strengthened; it is like adding fuel to the flame; and it will continue to burn stronger and stronger until they arrive at eminence in their profession, and even then it will not cease. I am proud to say that I have had the good fortune to be placed under men whose character and conduct differ widely from those hinted at by some of your young correspondents, in preceding pages of your

Magazine. He under whom I am at present is one of the most amiable, intelligent, and yet strictest of masters; and those who are under him are not only assisted, but urged onward, by every argument, in the way of knowledge. Such conduct is worthy of his character and profession; and need I say what is the result of it? I am persuaded there is not a man under him who would not do any thing in his power to serve him: and however little tyrants may think of the value of others, I am persuaded that there are many things which depend entirely upon journeymen, which, if left undone, would expose their masters to censure.

Thus, Sir, I have attempted to show that every young man has means in his own power for improvement, and that he may easily be assisted in this by his employer and head gardener: but is it not a fact, and a mournful one too, that it is not those who are the most deserving who are preferred? "Many a lovely flower is allowed to bloom, to fade, and to die, unnoticed and unknown." So alike it is with not a few of our most talented young men: they are doomed to see others promoted over them far inferior to themselves both in talents and attainments. Such is now the case: but I would fondly hope it will not long continue so; and that the glimmering light which is just discovering itself in the eastern horizon, is but the foregoer of a bright sun, which shall shine upon those who are most deserving of its genial rays. I would fondly hope that better days are drawing nigh, when gentlemen will see the propriety of providing for the comfort of those who labour for their pleasure and amusement; when head gardeners will contribute, by every means in their power, to the improvement of the young; when libraries shall be established throughout Britain; and when gardeners will shine, as they were wont to do, and as many of them still continue to shine, ornaments to their profession, and lights to a surrounding world. If you consider these few remarks worthy of a place in your Gardener's Magazine, they are at your service: and if they be the humble instruments of bettering the condition of gardeners in the least degree, or of inducing one master to lend a single book to a brother in youth and in trade, I shall not have written in vain.

I am, Sir, yours, &c.

A YOUNG GARDENER.

Mid-Lothian, May 25. 1833.

Art. VII. *On a Method of keeping Food warm, so that a working Gardener may lose as little Time as possible at Breakfast.* By Mr. Peter Mackenzie, Gardener to Robert Lowis, Esq., of Wester Plean.

Sir,

When I worked in the nursery of Messrs. Drummond and Sons, at Stirling, I had about two miles to walk from the place where I resided to the nursery; and most of my breakfast-hour was spent in going to and coming from breakfast, which I always considered a great loss of time. About the same period, I attended a course of lectures on chemistry, delivered to the members of the Stirling School of Arts; and I there learned that hot water, kept in a metallic vessel with a bright surface, retained its heat longer than it would in one of a dull appearance; I likewise learned that flannel was a bad conductor of caloric: and an idea entered my mind that I could turn this to my advantage.

I got two tin cans; the one going within the other, and the inner one having no handle. When put together, there was a vacuity of about an inch between them. The space at the bottom I filled with folds of flannel; rolling other folds, to about the same thickness, round the outside of the inner can, into which was poured the "halesome parritch." The inner lid, which should be flat, without any handle, was then put on; above it I laid folds of flannel similar to those in the bottom, and then put the outer lid over all. When I arrived at the nursery, the pitchers were buried among straw in the cart-sheds, and remained there till nine o'clock; at which time I found my breakfast warm and comfortable, after having been cooked four hours, and carried two miles through an atmosphere often below the freezing point. In five minutes my cog [can] was cleared; and I had then fifty or fifty-five minutes to partake of a breakfast of another nature: which sometimes consisted of a slice from Loudon, or Smith, or Hooker; or a wander round the loch; or a clamber among the crags, observing the harbingers of spring with delight, and hailing with rapture the new-born floret.

This shows what may be done by those who are placed in similar circumstances; and how those who are willing to improve themselves may, by adopting similar means, soon find themselves in possession of knowledge of which they may justly be proud.

I am, Sir, yours, &c.
Peter Mackenzie.

Stirlingshire, April 26. 1833.

Art. VIII. *Notes on the Influence of Climate on Vegetation, taken at a Lecture by Professor Lindley on that Subject, delivered at the Rooms of the Horticultural Society, May* 9. 1833. By J. W. L.

Every one who has paid great attention to plants must be aware that it is as important for their cultivators to know the kind of climate which is natural to them, as it is for them to know the nature of the plants themselves; yet very few gardeners have more than general ideas on the subject. They are aware that most exotic plants require heat, but their care of them is generally confined to this particular; and, without considering whether the native climate of a plant be moist or dry, or any other particulars respecting it, they keep their houses hot, and think that they have then done enough. It is no wonder that many plants die under such treatment; and, that when they live, it is by mere chance, the gardeners not knowing the cause of their own success.

Nothing can be more variable than the nature of climates. Countries lying under exactly the same degree of latitude have them often essentially different: and it is necessary to know in what these differences consist, to be able to cultivate properly the plants indigenous to each. Before, however, explaining the nature of the climates from which the plants cultivated in British hot-houses are generally brought, it may be advisable to enumerate those points, in all climates whatever, which operate most strongly upon plants. The principal differences between climates are in their temperature, humidity, air, and light; all of which have a very considerable influence on vegetation.

Temperature is generally thought to be, and perhaps is, the most essential of all these points. No seeds will germinate under 32° of Fahr.; and many require at least 60°. Excessive cold has a paralysing effect on plants: they droop, become languid, their organs contract, evaporation diminishes, and, consequently, by degrees they lose their power of taking food. Too much heat is as fatal to vegetation as too great a degree of cold; and nearly the same effects are produced, though from opposite causes. Excessive heat occasions such rapid evaporation, that the spongioles of the roots are not able to imbibe moisture fast enough to supply it; the leaves droop, and the plant dies. It is, therefore, clear that a proper temperature is indispensable to healthy vegetation. Temperature acts more on the fluids absorbed by plants than on the vegetable tissue; and, consequently, plants in a dry state are the least likely to be affected by its changes.

Humidity is the next important point to be attended to in cultivation. A certain degree of moisture is requisite to render vegetable tissue elastic; and, unless it possesses this quality, it cannot expand into leaves and fruit. If kept too dry, the spongioles of the roots wither, and lose their power of absorbing food: the food of vegetables can, indeed, only be absorbed when it is in a liquid state. Water is thus essential to the life of plants: but a certain degree of knowledge, as to their nature and habits, is indispensable, to enable a cultivator to administer it properly; as, if too much be given, and the plants kept too cold, they become dropsical, the leaves swell and rot off, and the plant dies. This is particularly the case with the Cácti, and other succulents; which are natives of a country subject to long seasons of dry weather, and absorb moisture much more readily than they part with it. When this is the case, if much water be given, the vessels become loaded with moisture, circulation is checked, and disease and death ultimately ensue.

Air is the next essential point to be attended to. From the atmospheric air, plants absorb the carbon which is considered necessary for their support. If you deprive them of atmospheric air, they languish, their leaves lose their colour, their flowers their scent, and their fruit its flavour; till by degrees they pine away, and die at last absolutely for want of food.

Light is the power which enables plants to decompose atmospheric air, and to extract from it the carbon which is necessary for their existence; but, if exposed to more light than is necessary for this purpose, they are fed too fast, and die from over-excitement. All the secretions which give taste and smell depend entirely upon light and air; and it is a remarkable fact, that all the most useful and finest flavoured fruits are brought from countries where they have abundance of brilliant light. Vines, Persian melons, dates, peaches, pomegranates, and many other of the most valuable productions of the vegetable world, lose their finest qualities if not grown in a strong light; while fruits which grow naturally in the shade, such as wild strawberries, apples, pears, &c., are generally acid, and, when analysed, are found to possess very little sugar. Important as light is to vegetation, it requires to be regulated by a strict attention to the native habits of the plant: too much and too little being alike injurious; and, if carried to excess, proving equally fatal in their effects.

Temperature, humidity, air, and light being thus proved to be all essential to the very existence of plants, it next becomes necessary to enquire what combinations of them are requisite for growing those plants most commonly found in our stoves and green-houses.

Many of our most beautiful exotic plants come from between the tropics: to know how to manage them advantageously, we must, therefore, consider what is the usual climate of their native region. These plants may be divided into seven classes, according to their habitats; and we take their native climates in succession.

The first class are those plants which grow in the open plains, exposed to bright sunshine, and enjoying abundance of air. Here there are two essentials, without which tropical plants of this description cannot be expected to thrive; viz., light and air: the latter being, of course, warm, to imitate that of their native plains. These countries are subject to long seasons of drought, followed by heavy rains, lasting for several months. The plants have, consequently, two distinct periods: one of growth, during which they require heat and abundant moisture; and one of repose, during which they also want excessive heat, but accompanied by complete drought. Very few gardeners ever think of this: even the more scientific are generally satisfied with learning the degree of heat which the plants can bear in their native regions; but the accompanying circumstances are rarely, if ever, taken into consideration. It is so difficult to imagine circumstances totally different from those by which we have been always surrounded, that very few gardeners can be persuaded to give their plants no water for several weeks or months, and to inundate them at another season: yet, without this treatment, the plants must be in an unnatural state, and cannot be expected to thrive. Another important mistake is, keeping the stove at the same temperature during the night as during the day. Gardeners often appear to think that they have not done their duty by their plants unless they have made them quite as warm and comfortable for the night as, perchance, they would like to be themselves. Nothing can be more contrary to nature than this practice; as, in most hot countries, the nights are comparatively cold.

Plants from the woody districts between the tropics require very different management from those which grow in the plains. Many of the orchideous plants, and the exotic ferns, grow in shady places, sheltered from every blast of wind, and flourish in an atmosphere almost stifling from its warmth and moisture. These plants, if exposed to the same treatment as those from open plains requiring the same degree of heat, would inevitably die, as air and bright light would destroy them. In their native country, the epiphytes grow on the branches of trees (as ferns and other plants sometimes do in moist situations in Britain), sending down their long fibrous roots in search of moisture, and requiring no soil save what may have been accidentally deposited on the branch which forms their habitation. Want of attention to this fact long prevented, or at least greatly impeded, the cultivation of this beautiful class of plants in stoves; and, even so late as 1822, the Berlin botanic garden, one of the richest in Europe, could boast of only nineteen species: now, there are above three hundred cultivated in the nursery of the Messrs. Loddiges alone; and very large private collections are to be found in various parts of the kingdom.

Islands between the tropics have a different climate from that of the main land, in the same latitude. They, even in the dry season, in the nights, have heavy dews. The plants from these countries require less repose; they are always in a growing state; and they should have nearly the same degree of heat in the night as in the day. The temperature, generally, should be more moderate and less varying. Many West Indian and New Zealand plants rank in this class.

A great number of valuable and favourite plants come from Africa, a country which varies very much in its climates. The regions from which most of the African plants are brought may be divided into three classes. In the first, the neighbourhood of Senegambia, the Congo River, and settlements on the coast of Sierra Leone, there are, alternately, wet and dry seasons. During the latter, the face of the whole country appears parched and withered; but, immediately that the rainy season commences, the whole vegetation of the country bursts into life. The plants grow with a luxuriance and rapidity scarcely to be conceived, immense leaves unfold themselves, and the soil is covered with a dense mass of rich verdure.

The immense arid plains extending from the Cape of Good Hope into the interior of Southern Africa, known by the name of the Great Karroo, or Desert, present a scorched and barren surface during the greater part of the year. The plants never grow close enough together to give the appearance of a mass of vegetation; and, during all the dry season, extreme sterility is the characteristic of the scene. But, as soon as the rains fall, the whole face of the country suddenly changes: bulbous-rooted plants push up their innumerable leaves and gaudy flowers, the Mesembryánthema unfold their glittering blossoms, and, for a brief month or six weeks, Flora occupies the karroos in her gayest forms: but, in August, the sun overcomes the humidity of the air and earth; leaves wither up;

flowers perish; dry fruits appear; and, presently, nothing remains to view except plants with either hard and dry, or extremely succulent leaves, to enable them to absorb moisture from the atmosphere, and to impede too rapid an evaporation during the dry months.

In Mexico, the climate is generally temperate; but the mountainous parts differ very considerably from the plains. Bagdad is subject to variations of intense heat and cold, and occasionally to heavy rains.

In the polar regions, where there is perpetual light during six months of the year, and darkness during the remainder, the plants are weak and stunted. They grow slowly; and trees, large in other countries, dwindle down to the size of shrubs.

Besides the differences of climate already enumerated, there are other circumstances which require the attention of the gardener. One is the effect produced by the pressure of the atmosphere. Mountain plants will not thrive well in plains; and will die there, though enjoying exactly the same heat as in their native countries. Light, it has been already shown, has a very material influence on vegetation. When exposed to it, plants give out their oxygen, and evaporation proceeds rapidly. Mountain plants are generally covered with snow during winter; and thus enjoy a season of complete repose, and equal temperature, in darkness. When plants thus habituated are long exposed to the light, they are too much excited, and become so feeble as to be unable to resist the cold. Experiments have been tried for keeping alpine plants in darkness during winter, which have proved successful.

Almost all plants require alternate seasons of repose and growth; and many, if forced too much, and kept continually growing, will die. As an instance of the power of rest: from accidental circumstances, a plant, generally difficult to flower, was found to grow 7 ft. high in one season, and was covered with thousands of blossoms. The plant had been forced very rapidly; and afterwards, in order to make room for others coming into flower, put away in a dark place, and completely neglected for several months. It had thus a complete period of rest; and, when again forced, it blossomed profusely, as before stated, and was never seen finer in China. Nothing can be more at variance with the ordinary practice of gardeners than this treatment: it is, indeed, impossible, where plants from different countries, and, of course, habituated to different climates, are all mixed together in one house. Plants, when in a state of repose, have also an untidy and desolate appearance; very annoying to gardeners, who pique themselves on their plants always looking well.

To cultivate exotic plants well, every gardener should have seven or eight different houses, each of which should be devoted to plants requiring a particular climate. This would render collections of plants much more interesting than they are at present; since, from the power that all plants possess of accommodating themselves to circumstances, those cultivated in stoves in Britain are in a decidedly artificial state, and retain but few of their original habits. Many of the peculiarities of the different climates which have been enumerated may be easily imitated: where excessive light is required, the houses should have iron framework, and white clear glass; where less light is wanted, wood framework might be employed; and, for those plants which require shade, to wooden frames might be added green glass, or netting, or climbers, or even wooden shutters. It is not more difficult to give proper proportions of air and moisture. Vapour is easily produced for those plants which require a suffocating moist heat, by throwing water on a heated floor. In this manner, with such additions as will, of course, suggest themselves to an experienced gardener, the native climates of almost all kinds of plants may be correctly imitated; but it can never be too often repeated, that all will be comparatively useless unless the plants are allowed proper periodical rests. The taking up of tulips and hyacinths, and of the roots of georginas, &c., affords an illustration of the same principle. Nearly all foreign bulbs die after the first season, if left to winter in the ground.

Such was the general purport of Dr. Lindley's lecture; into which, however, a great deal more was introduced than we were able to note down. As climate is a subject than which nothing more interesting to gardeners can be named, and on which scarcely any thing is known correctly, it is to be hoped that Dr. Lindley may be induced, on some future occasion, himself to lay the detailed result of his enquiries before the public. J. W. L.

ART. IX. *On what is vulgarly called Blight on Plants.*

By MR. JAMES WEBB.

Sir,

HAVING been much gratified, as well as instructed, by the very excellent article in your last Number on mildew, I take the liberty of suggesting that you would render a very essential service to gardeners, by giving an article explaining what is commonly, but I suspect improperly, called blight. On looking into several dictionaries for the meaning of this word, I find that by some it is called a disease, by others a withering, &c. Johnson calls it mildew; and in Crabbe's *Technological Dictionary* it is described in such a manner as to include both what constitutes the mildew and the smut. On conversing with several gardeners and farmers, I find many have not any distinct ideas on the subject of either mildew or blight. Some consider the former a disease in the juices; others that it is produced by insects; some attributing it to the real cause, fungi; and some think that it may proceed sometimes from one cause and sometimes from another. The paper in your last Number (p. 325.), to which I allude, distinctly points out parasitic fungi as mildew; and I apprehend it is no less certain that what is generally termed blight is produced by insects. It seems to me, however, that the term blight ought to be restricted to such a withering or blasting of plants as we sometimes see produced by lightning, or sudden alternations of extreme cold and extreme heat. The smut appears to me an organic disease; and if this be the case, we have here three distinct terms for three distinct manners in which plants are injuriously affected, independently of the evils produced by insects; to express some of which the term blight is now generally made use of. In speaking of the injuries done by insects, it will generally be necessary to add to the general term insect the name of the kind or the class; such as the A`phis, green, black, and woolly; or of the class, as the caterpillar; of which last there is a great variety of sorts, some of which, when they appear on trees, are called blight; and, when on gooseberries or currants, simply caterpillars. However, I leave the arrangement of the subject entirely in your hands, and beg to subscribe myself, Sir, yours, &c.

Hampstead, June 29. 1833. JAMES WEBB.

INTO our last Number (p. 334.) we quoted from the *Entomological Magazine*, No. ii., an interesting notice on the cotton blight of the apple tree, A`phis lanígera, from an able contribution to the latter work by Rusticus of Godalming. In No. iii. of the *Entomological Magazine*, published in April, the same writer has communicated a series of facts on the species of A`phis generally, and especially on the hop fly, A`phis hùmuli. Rusticus, besides describing the habits of this particular species, shows that its prevalence or comparative absence, insignificant as so diminutive a creature may seem, has been known to influence the returns of the hop trade to the amount of 426,000*l.* in one year (1825), in the duty alone; and, says Rusticus, "this seems a large sum, but it is not one twentieth part of the sums gained and lost by dealers during 1825, and the following year, 1826."

We omit to notice in detail the interesting statements supplied on this species, and present, by permission, our young gardening friends with the remarks of Rusticus on the habits of the species of A`phis generally, because we feel conscious that they will prove highly interesting and instructive.

"The true blight, or aphis, is a quiet, dull, stupid-looking insect, mostly without wings, but sometimes it has four, two of which are much larger and longer than the other two, and fold over and hide them, reaching beyond the body and meeting together behind it: these wings are generally as clear as crystal, with a few veins in them, yet if you hold the insect in the sunshine, and examine him through a glass, you will find they take all the colours of the rainbow: you will also find he has a long trunk or sucker, which is used as a pump or siphon, through which the sap of plants is drawn. I have sometimes seen this sucker so long as to pass under the breast and legs, and reach a considerable distance behind the body, but it is not generally so. All blights infest the young and juicy shoots and leaves of plants, for the purpose of sap-sucking: and the plants honoured by their operations forthwith play the most amusing and incredible vagaries: bearing blossoms instead of leaves, leaves instead of blossoms: twisting into corkscrews stems which ought to be straight, and making straight as sticks those which, like the scarlet runner and hop, ought to twine; sometimes, as in the peach, making the leaves hump up in the middle, and causing the tree to look as though it had a famous crop of young fruit; making apple trees bear blossoms on their roots, and causing roots to grow out of their young shoots; and, by tormenting orchards in this way, preventing the fruit from ripening, and making it woolly, tasteless, and without juice. Our China asters often owe a good deal of their beauty to these vermin; they act as a spur to make them blossom beyond their strength and nature, and then die off without bearing seed. It is amusing to see with what regularity the blight station themselves on the young shoots of the Guelder rose, crowding so close together that not a morsel of the rind is to be seen, and not unfrequently forming a double tier, or two thicknesses; the poor sprig losing its formal unbending upright position, and writhing itself into strange contortions.

"Blights are of all colours, but green is their most fashionable hue; those of broad beans are black as soot, and velvety; and these, if attended to, do but little harm; they cluster at the very top, and each bean should be lopped just below the blight, and the top carried away and burnt, not thrown on the ground, or else they are sure to climb up the bean stalks again, and, stopping here and there at the best landing place, to increase and multiply, thus soon covering the whole plant; nor should they be buried in the ground, for they take care to outwit you by living under ground for months, and, when the gardener's spade turns them up again, they make for the beans directly: the plan of lopping the beans does not injure the crop, but, if carefully done, rather improves it. The blight of the willow is very large, and, at first sight looks greyish, but under a glass is beautifully variegated with black and white: when crushed it gives out a deep blood-coloured dye, which stays on your hand several days, in spite of frequent washings.

"I have taken a good deal of pains to find out the birth and parentage of true blights; and for this purpose have watched, day after day, the colonies of them in my own garden, and single ones which I have kept in doors, and under tumblers turned upside down: the increase is prodigious; it beats every thing of the kind that I have ever seen, heard, or read of. Insects in general come from an egg; then turn to a caterpillar, which does nothing but eat; then to a chrysalis, which does nothing but sleep; then to a perfect beetle or fly, which does nothing but increase its kind. But blights proceed altogether on another system; the young ones are born exactly like the old ones, but less; they stick their beaks through the rind, and begin drawing sap when only a day old, and go on quietly sucking away for seven or eight days; and then, without love, courtship, or matrimony, each individual begins bringing forth young ones, and continues to do so for months, at the rate of from a dozen to eighteen every day, and yet continues to increase in size all the while: there seem to be no males, no drones, all bring forth alike. Early in the year these blights are scattered along the stems, but as soon as the little ones come to light, and commence sap-sucking close to their mother, the spaces get filled up, the old ones look like giants among the rest, as here and there an ox in a flock of sheep; when all the spare room is filled up, and the stalk completely covered. The young ones, when they make their first appearance in the world, seem rather posed as to what to be at, and stand quietly on the backs of the others for an hour or so; then, as if having made up their minds, they toddle upwards, walking on the backs of the whole flock till they arrive at the upper end, and then settle themselves quietly down, as close as possible to the outermost of their friends, and then commence sap-sucking like the rest; the flock by this means extends in length every day, and at last the growing shoot is overtaken by their multitude, and completely covered to the very tip. Towards autumn, however, the blights undergo a change in their nature: their feet stick close to the rind, their skin opens along the back, and a winged blight comes out — the summer generations being entirely wingless. These are male and female, and fly about and enjoy themselves; and, what seems scarcely credible, these winged females lay eggs, having first lived through the winter; and, whilst this operation is going on, a solitary winged blight may be observed on the under side of the leaves, or on the young shoots, particularly on the hop, and differing from all its own progeny, in being winged and nearly black, whereas its young are green and without wings. In May, a fly lays a lot of eggs; these eggs hatch and become blights; these blights are viviparous, and that without the usual union of sexes, and so are their children and grandchildren, the number of births depending solely on the quantity and quality of their food; at last, as winter approaches, the whole generation, or series of generations, assumes wings, which the parents did not possess, undergoes frequently a total change in colour, and in the spring, instead of being viviparous, lays eggs.

"You will never find a plant of any kind infested with the aphis, without also observing a number of ants and ladybirds among them, and also a queer-looking insect, like a fat lizard, which is in fact the caterpillar of the ladybird. The connection of the ant and the aphis is of the most peaceful kind that can be conceived; their object is the honeydew which the aphis emits; and, far from hurting the animal which affords them this pleasant food, they show it the greatest possible attention and kindness, licking it all over with their tongues, and fondling it, and patting it, and caressing it with their antennæ in the kindest prettiest way imaginable: not so the ladybird, or its lizard-like caterpillar; these feed on the blights most voraciously, a single grub clearing a leaf, on which were forty or more, in the course of a day. The perfect ladybird is a decided enemy to them *, but not so formidable a one as the grub. The eggs of the ladybird may often be seen on the hop leaf; they are yellow, and five or six in a cluster placed on their ends: these should on no account be destroyed, as is too often the case; but, on the contrary, every encouragement should be given to so decided a friend to the hop-grower.

"Besides the ladybird and its grub, there are two other terrible enemies to the poor aphis; one of which is a green ungainly-looking grub, without legs, which lies flat on the surface of the leaf, and stretches out its neck just like a leech, till it touches one of them; directly he feels one he seizes it in his teeth, and holds it up wriggling in the air, till he has sucked all the goodness out of it, and left it a mere empty skin. This curious creature turns to a fly [one of the Sýrphidæ, *Ed. Ent. Mag.*], which has a body banded with different colours, and which in summer you may often observe under trees and about flowers, standing quite still in the air, as though asleep, yet, if you try to catch him, darting off like an arrow. The other has six legs, and very large strong curved jaws, and is a most ferocious-looking fellow, strutting about with the wings of the blights which he has killed on his back. This fierce fellow comes to a very beautiful fly [Chrysòpa Pérla, *Ed. Ent. Mag.*] with four wings, all divided into meshes like a net, and two beautiful golden eyes. All these creatures, which thus live on the plant lice, have a very strong and disagreeable smell in the perfect state.

"For a favourite plant infested with blight there are several remedies — smoke of tobacco, snuff, &c.; but the most effectual, and, the least hurtful to the plant, is to let it stand in a tank of cold water for half an hour, when all the blights will leave it, and swim on the surface of the water. For hops, none of these plans are available; and, unless a way could be discovered of increasing the number of the blight-eaters, I fear the chance of discovering a remedy is very small." — *Rusticus. Godalming, September* 16. 1832. (*Entomological Magazine,* No. iii. p. 217, 224.)

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* The larch tree has, at least when planted over chalk, in some seasons, its foliage, soon after it is expanded, speckled all over with minute clusters of white down; in each of which a group of animated atoms, or creatures, nestle. These are individuals of an insect named, I have been told, Cóccus láricis; and I may here incidentally advise no one, when clad in a new coat, to pass through a plantation of larch on which, and while, these prevail. The first instance I had the pleasure to witness of the golden bug's devouring small insects was some eight years ago, when I saw it attacking these Cócci, on the branch of a young larch tree. I was struck with the determination and the comparative speed with which the Coccinélla took them one by one out of my sight into its mouth.

It is dangerous to be found in bad company. Because the golden bug is often seen in company with A′phides, Cócci, &c., it has been deemed the parent of them by the unthinking. An amateur florist, aged perhaps fifty-five years, so skilled as to occasionally win prizes with his productions at the horticultural society's shows in the neighbourhood, once accompanied me round a garden, and, on his observing a golden bug or two on plants that we passed, he picked them off, and crushed them to death, remarking at the time, with an air of complaisant approbation of his judgment and zeal, "Nasty things! they breed lice and all sorts of vermin." Mr. Major has given, in Vol. IV. p. 445., an accurate notice on the habits of the golden bug and its larva. — *J. D.*

Art. X. *Short Communications.*

A cheap Mode of making Hand Glasses for striking Cuttings, &c. — Now that glass is so dear, a substitute for blown hand glasses is not valueless. Let the gardener provide himself with a glazier's patent diamond, with which any one can cut, and cut up any pieces of broken window glass into figures appropriate in size and form for the sides of four or six sided prisms, terminated by four or six sided pyramids, thus (*fig.* 114.): —

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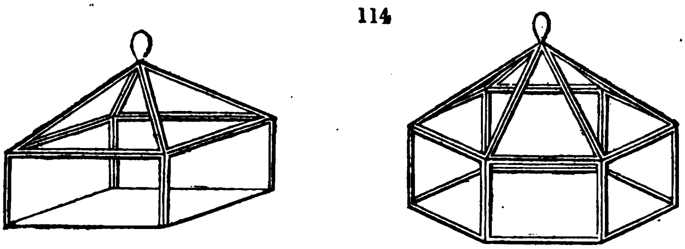

When the pieces of glass are properly cut out (by a wooden or card pattern), let him joint them together with strips of tape about three eighths of an inch wide, made to adhere to the glass with Indian-rubber varnish: they will be found to form, when the tape is again varnished over, firm and durable hand glasses, and may be made as much as 12 in. in diameter: a loop of wire may be passed loosely through the top to lift them by. A winter's evening spent in making them would save some expense, and, possibly, in some instances, gain the advantages of hand glasses where they could not be readily procured. I am, Sir, yours, &c.— *Robert Mallet.* 94. *Capel Street, Dublin, Dec.* 15. 1832.

The Early Shore Potato prolific in Tubers; and its Tubers are, occasionally, very large. — Sir, A gardener in this town, upon a rich bog earth, raised a most extraordinary crop of the early shore potato, about the culture of which no particular pains were taken; they were *generally* of great size; but one was ascertained to weigh 4¾ lbs. Last year the same gardener took up two roots of the same stock of potatoes; weighing respectively 2 stones 6 lbs., and 2 stones 1 lb.; of which one potato weighed 2½ lbs. Had not the man been a good and old gardener, a market gardener, I should have doubted the potatoes being early shore; but they undoubtedly were of that stock, and not very large originally; the result must have been owing to the bog earth (meadow land dug up deep).—*T. W. S. Woodbridge, March* 14. 1833.

REVIEWS.

Art. I. *Catalogue of Works on Gardening, Agriculture, Botany, Rural Architecture, &c., lately published, with some Account of those considered the most interesting.*

Drummond, W. and Sons, Nursery and Seedsmen, Stirling: Report of the Exhibition of Agricultural Productions, &c., held at Stirling, from Nov. 16. 1832, to March 13. 1833, with Communications on the following important Subjects: viz., Wedge and Tile Draining; Thorough Drainage, and Deep Ploughing; Bones as a Manure; and the Improvement of Agricultural Plants. Pamph. 8vo. Stirling, 1833. 1*s.*

We have before (Vol. VIII. p. 639.) noticed the meritorious exertions of Messrs. Drummond in originating this description of agricultural exhibition; and we have great pleasure in perceiving, by the pamphlet of which the above is the title, that it has continued with increasing prosperity and usefulness. "The rapidity with which, from being merely Drummond and Sons' exhibition, it has assumed the character of that of the whole surrounding country, could scarcely have been anticipated." In order to give our readers some idea of the effect of this exhibition, we may state that Messrs. Drummond's premises consist of one long room, and that the articles were arranged along the sides of the room, with a broad open space as a path in the middle. The arrangement, as far as practicable, was in species and varieties, in order to aid comparison. The first division consisted of roots and vegetables, being chiefly turnips, but partly also carrots, potatoes, mangold wurtzel, and cabbage. The second consisted of specimens of grain, among which were a great many different sorts of wheat, a number of sorts of barley, oats, rye, beans, vetches, and millet. The third class consisted of manufactured produce, such as wheaten flour, barley meal, pease flour, oatmeal of various kinds, pot barley, linseed meal, split beans, half-ground beans for cow-feeders, malt, potato flour, tapioca of the potato, true tapioca, India arrow-root flour, maccaroni, Dunlop and other cheeses, including ewe-milk cheese. The fourth class consisted of grasses and herbage plants, in seeds, in dried specimens, and in bundles. The fifth or miscellaneous class consisted of models of different kinds: straw ropes, wheat straw for thatching, and a great variety of other articles. Among them was a specimen of a beech hedge from Messrs. Drummond's nursery grounds, the details respecting the management of which may prove instructive to others of the profession. "The mode of rearing this hedge is simply by annually cutting the sides close in, and nearly perpendicular, but never the tops, until they arrive at the desired height. Each plant has thus a fine stem (6 inches separate), well feathered, and the hedge presents a close surface of leaves, occupying no more space than a common garden wall. Nine hundred yards of these hedges have been kept from 7 to 8 ft. in height more than 20 years, increasing in width only 2 in. or 3 in. Height of the specimen, 7 ft.; width at bottom, 15 in.; width at 6 in. from the top, 12 in."

The sixth class consisted of garden produce, and included numerous specimens of roots, fruits, seeds, &c., and models of moss houses, of "Ellen's Bower" in the island of Loch Katrine, and of a hollow brick wall. The seventh class consisted of implements. Among these were Smith of Deanston's subsoil plough, with the following label:—"Used on Deanston farm; drawn by four horses, yoked two and two. A furrow, about 12 in. broad and 2 in. deep, is taken up by the common plough, when the subsoil plough follows, going from 16 in. to 18 in. deep from the surface; will plough a Scotch acre in 9 hours, turning out all the stones not exceeding 2 cwt., and completely opening up the subsoil. Cost of a plough, with soam chain and two socks, from 7*l.* to 8*l.*" We wish to call the attention of gardeners to this plough, which we are persuaded they might frequently use to advantage in preparing extensive surfaces for planting.

The communications occupy 32 pages, and well deserve the perusal of every agriculturist. The pamphlet is so cheap, that every reading farmer should procure it. The following interesting passage occurs at the end of Mr. Smith of Deanston's article on thorough drainage and deep ploughing (Mr. Smith is considered one of the most scientific mechanical engineers in Scotland, as well as a man of singular originality and invention):—

"The complete drainage of land is the foundation of all good husbandry. . . . . The general improvement of the soil of the country would tend to lower the value of high-rented land; but then the aggregate rental of the kingdom would be greatly increased, whilst the general average cost of the produce would be considerably diminished, affording cheap provisions to the consumer, whilst both the landowner and tenant would have greater returns. By this great public benefit would arise. Labour would, in the first place, be more in demand, and the labouring classes of all professions would be able to live more comfortably; the British manufacturer would be aided in his competition with the cheap labour of other countries; the general revenue of the country would be greatly increased, thereby diminishing the pressure of the national debt; whilst the salubrity of the climate, and general beauty of the country, would be vastly promoted. There is no subject, therefore, more worthy the attention of landed proprietors and agricultural associations, and, indeed, of all who desire to promote the prosperity of their country, than the encouragement of the thorough drainage and deep working of land."

We strongly recommend the establishment of exhibitions of this kind by the principal seedsmen in our provincial towns every where. By collecting so many interesting articles, and displaying them, as is done at Stirling, for four months, no farmer who comes to market can escape seeing them; and he must be a lifeless piece of dough, indeed, who would not be stimulated by them to introduce better varieties of grain and roots, and improved implements, on his own farm.

Loudon, J. C.: An Encyclopædia of Cottage, Farm, and Villa Architecture and Furniture; containing numerous Designs for Dwellings, from the Cottage to the Villa, including Farm Houses, Farmeries, and other Agricultural Buildings; several Designs for Country Inns, Public Houses, and Parochial Schools; with the requisite Fittings-up, Fixtures, and Furniture; and appropriate Offices, Gardens, and Garden Scenery; each Design accompanied with Analytical and Critical Remarks, illustrative of the Principles of Architectural Science and Taste on which it is composed. Illustrated by nearly 100 lithographs, and above 2000 engravings on wood. 8vo, pp. 1138. London, 1833. 3*l.*

This work, which is one of the cheapest which ever issued from the British press, will, we trust, have as much effect in spreading a taste for rural and domestic architecture, as our *Encyclopædia of Gardening* has done for that art. It is not for us to give our own opinion of the work, though we are fairly entitled to do so to a certain extent, since the designs which constitute by far the most important part of the book, have been contributed by upwards of seventy different individuals, including some of the first, and, in our opinion, the very first, of British architects. We must say, we have been highly gratified by the manner in which it has been received by the public; and though it is so cheap that it will probably not pay its expenses for some years, yet it delights us to think of the good which, in the mean time, it will do, not only in Britain, but in America.

Jopling, Joseph, Esq., Architect: The Practice of Isometrical Perspective. Part I. price 1*s.*; to be completed in four Parts. London, 1833.

Isometrical perspective is by far the most useful kind for the landscape-gardener and garden architect; because it alone, of all the different manners of drawing, contains the true principle of drawing maps and plans of grounds and buildings, so as to show the heights and shapes of the objects. The young gardener, who does not understand isometrical perspective (which we have briefly explained in Vol. VI. p. 351. fig. 77.), we hold to be unfit for acting either as a delineator of plans for laying out pleasure grounds, or for building the walls of kitchen-gardens, or erecting hot-houses. We, therefore, strongly recommend this little work to all such of our young readers as are ambitious of rising in their profession. We would also strongly recommend Mr. Jopling to render his work, in a peculiar manner, fitting for the gardener, land-surveyor, and mineralogical surveyor, by showing the application of isometrical perspective to rural scenery, and imagining plans and sections of mineral districts. At a late meeting of the Society of Civil Engineers, at which we were present, an admirable map of a mineral district in Northumberland, with the sections, in different directions, of all the various strata, was exhibited and explained; expressly for the purpose of showing how well adapted isometrical perspective is for this description of delineation. Its application to garden scenery we have shown in our *Illustrations of Landscape-Gardening*, and to farm buildings in our *Encyclopædia of Architecture.* Its application to machines and various objects may be seen in the *Mechanics' Magazine*, one of the cheapest and best books that a gardener can take in.

Timbs, J., Author of various works, Editor: The Mirror of Literature, Amusement, Instruction, &c. London. In weekly 8vo numbers, price 2*d.* each.

Ibid: Arcana of Science and Art; or, an Annual Register of Useful Inventions, Improvements, &c., with 43 engravings. Small 8vo. London, 1833. 5*s.*

The twenty-first volume of the *Mirror* having been sent us, probably on account of the number of articles which it contains from both our Magazines, we willingly notice it, to say that we do not know a cheaper or more entertaining work. There is about as much matter in one of these twopenny numbers as there is in three of the *Penny Magazines*, and the woodcuts, though not nearly so large as in the latter work, are yet equally well done, and sufficiently explanatory. On the whole, like the *Arcana of Science*, it is a book well adapted for being presented to gardeners by their employers. This latter we have before sufficiently commended; and need only add that the present volume is not inferior to any of its predecessors.

Nees von Esenbeck, Th. Fr. Lud. Phil. et Med. Dr. in Universitate Fredericia Wilhelmia Rhenana Professor: Genera Plantarum Floræ Germanicæ Iconibus et Descriptionibus illustrata. Fasciculus I. 8vo, 20 plates and 43 pages of letterpress. Bonn on the Rhine, 1833. 4*s.*

This work is wholly in elucidation of systematic botany. It is written throughout in Latin, and the amount of the remarks with which the author prefaces his first number (fasciculus) of the work is this: — He deems the accurate determination and knowledge of the characters of genera to be the very foundation of systematic botany, and he desires and intends to illustrate by descriptions and by figures the characters of the genera indigenous to Germany, that they may become easily and accurately known to tyroes. He states that he has not prosecuted the dissections to an extreme length (although, we think, quite far enough for the end proposed), that the price of his work might not be so increased, as in this case it needs must have been, as to place it beyond the reach of those for whose benefit he designs it. The author has determined to delineate and describe every character he notices from Nature herself; a resolution that cannot be too much commended, but which entails on him numerous difficulties. He remarks, however, that, notwithstanding this, he shall, if blessed with continued health, proceed cheerfully in his task, if the sale of the work shall prove adequate to the necessity of the case. The preface is dated "Bonn on the Rhine, March 1. 1833."

We now notice the work itself, in which some one species of each of the genera illustrated is chosen as a suitable example of the genus to which it belongs, and then all the parts of fructification of that species are exhibited in a plate of figures, and explained in the text by descriptions relative to them: to these descriptions are prefixed the prescriptive characters of the genus. The contents of the first fasciculus illustrate the genera of the families Coníferæ, *B*etulàceæ, Cupulíferæ, *P*latanàceæ, *S*alícinæ. We shall now name the genera illustrated, and attach to the name of each the number of the figures given in illustration of it. The doing of this will enable the reader to judge how elaborately the author has treated his subject. Family Coníferæ: genus *P*ìnus *Lk.* 24 figures; genus *P*ícea *Lk.* 15 figures; *A*'bies *Lk.* 21; *L*àrix *Tourn.* 19; *C*uprèssus *Rich.* 20; *Th*ùja *Rich.* 17; *J*uníperus *Lin.* 25; *E*'phedra *Tourn.* 28; *T*áxus *Tourn.* 21. Family *B*etulàceæ: *B*ètula *Tourn.* 24; *A*'lnus *Tourn.* 25. Family Cupulíferæ: *C*árpinus *Tourn.* 26; *O*'strya *Mich.* 16; *C*órylus *Linn.* 27; *Q*uércus *Linn.* 19; *F*àgus *Tourn.* 26; *C*astànea *Tourn.* 20. Family *P*latanàceæ: *P*látanus 28. Family *S*alícinæ: *S*àlix *Tourn.* 24; *P*ópulus *Tourn.* 19. The figures to each genus are on one page or plate, and the descriptions invariably occupy the two pages of a leaf opposite; an arrangement producing the convenience of seeing all at a view, and of enabling the student of systematic botany to break up the book, and place the information supplied, by the text and figures, on each genus, wherever he would: this is not to be accomplished when the information on distinct genera is printed continuously on the same page, as is far too often done in works of this nature. The figures, as a work of art, are most creditably executed, and in faithfulness to nature, we think, faultless. We are, it is true, not familiar with the parts of fructification of every genus illustrated, but have a rather intimate acquaintance with those of some of them; and as these are shown quite to our satisfaction, we conclude that the whole are unexceptionable. We observe a few, very few, typographical errors in the text. We are astonished at the cheapness of the work, and most heartily hope that on this account, and on account of its real merits, it will be most extensively patronised. Arboriculturists in this kingdom should take the work for the sake of its elucidation of the botanical characters of trees, although the number of the genera of the wild trees of Germany is probably small in proportion to that of the genera of other plants. The words employed in the Latin descriptions are for the most part those in current use in technical botany, and hence young gardeners and others a little acquainted with botany and the structure of Latin will be able to interpret the descriptions without difficulty.

A Lady: General Observations on Vegetation; translated from the French of C. F. Brisseau Mirbel; to which are added numerous and extensive Notes: intended to inspire young Persons with a taste for Botany, by presenting to them a Birdseye View of the whole Vegetable Kingdom. Small 8vo, 104 pages. London, 1833. 3*s.* 6*d.*

It strikes us that this little book can only be appreciated by those who are already acquainted with rather many genera and species of plants, particularly of exotic ones, and who are unable, or have not an opportunity, to read the French original. To such the interesting information supplied on the numerous plants spoken of must be very welcome; and the book is very eligible for presenting to many an intelligent and aspiring young gardener, and to young ladies and gentlemen who have already acquired the power of distinguishing and naming many plants. In the notes are supplied the technical or distinctive characters of the orders and genera spoken of; but we see in this provision but little utility, as we fear no one, or but extremely few, will read the writer's book, who has to acquire a knowledge of these characters as he or she proceeds, ere he or she can attain to the enjoyment and full understanding of the text itself.

One of the titles of the book is Botanical Geography, and it, in short, notices the more striking of the families planted over our planet, and the principal of the attributes, characteristics, and properties of each.

Banks, George, F.L.S.: An Introduction to the Study of English Botany; with a Glossary of Terms. Illustrated by 37 plates. The second edition. 8vo, 94 pages. London, 1832. 9*s.*

The thirty-seven plates are admirably executed, and faithfully portray the plants, and parts of plants, which they are meant to represent. As each plate bears several figures, the whole taken together illustrate many of the botanic terms, while the text enumerates, explains, and refers to plants by name for examples of the remainder. It is a clear catalogue of the terms used in Linnæan botany, and will be an elegant and useful manual to ladies and others commencing the study of botany by this system, and who dare not commence the science by the natural system. Towards the knowledge of botany by the natural system, this work also subserves, as far as it goes, which is a good way; but, in the natural system, there are many terms in use which in this volume are not explained. A finely engraved portrait of Linnæus, with the elegant Linnæ*a* borealis insculptured beneath it, is prefixed to the volume, which is dedicated to Dr. Hooker.

Main, James, A.L.S. (Author of "The Villa and Cottage Florist's Directory," and Editor of the last Editions of

Mawe's "Every Man his own Gardener," "The Greenhouse Companion," &c.): Illustrations of Vegetable Physiology, practically applied to the Garden, the Field, and the Forest; consisting of Original Observations collected during an experience of fifty years. Small 8vo, 328 pages, with 62 woodcuts. London, 1833. 8*s.*

A look through this work has given us much pleasure. The author, in his preface, states that it has been his intention to render the work "a compendium of the discoveries and best authenticated facts which have appeared in the writings of others, and which have been *proved* in the practice and experience of the writer, or in that of his contemporaries, during the last fifty years."

"He trusts that new matter enough will be found to justify the publication; and though but a rough sketch, which, from his very limited knowledge of chemistry, he has not been able to fill up as he wished, still he entertains a hope that, such as it is, it may receive amplification from an abler pen, and accomplish his aim of rendering vegetable physiology better and more generally understood." The work has, in consequence, been so written as "to bear a *popular* rather than a scientific character, with the sole view of assisting, by familiar explanation, the various practice of the gardener and woodman. In fact, the principal feature of the work is an attempt to explain only what has been obscurely, or *too learnedly*, treated before; to mention circumstances which, though generally known, have never appeared in print; and to make up for deficient language by explanatory figures of the visible constituents of plants: the intention being, however, only to mark the greater parts, their limits, and their connections, leaving the minor and less striking portions of vegetable structure to those who may have better opportunities to examine and describe them."

The work, then, is designed to be a useful manual to every one who gardens, or spends more or less of his time among plants, and addicts himself to the consideration and investigation of the phenomena they display, and of the hidden processes carried on within them. To all such persons the work will be useful; and as, happily (happily for their own happiness), persons of this class are now numerous in Britain, the work will doubtless become, as it is intended to be, a popular one; and in this view of the case we can only express our surprise that the publisher should have been tempted to fix the price of the volume so injudiciously high. How can we possibly recommend this small volume, of little more than 300 pages, to a journeyman gardener, when as much is charged for it as he receives for a week's labour. The last time we were at Woburn Abbey, the wages of the journeymen gardeners there were 9*s.* a week; and at the seat of the Marquess of Chandos, Wooton, near Aylesbury, they are at present only 7*s.* The cost of getting up such a work is not nearly so much as that required to get up the present Number of this Magazine, and yet the price asked is more than double.

We must not end our notice here, but, to our scientific readers, must remark that Mr. Main, in striving to treat the subject of his work in a popular manner, has not omitted to infuse into it, besides a copious stock of original facts, certain original and peculiar views on the vegetative principles themselves. He even propounds a new principle: it is, that the life and vital processes of a plant, and the accretion to its bulk, and expansion of the preexistent members resident within it, are not instituted and carried on, in the first instance, in the alburnum and liber, but in a "*distinct member*" situnate between these, "slightly attached to both, but united to neither," to which Mr. Main has applied the terms "indusium" and "vital envelope." Mr. Main offers, p. 8, 9. 134. and onwards, a detail of facts in proof of this opinion.

Other points, on which the views of Mr. Main will be perused with interest by physiologists, are, the constitution of bulbs, p. 45. &c.; motion, &c. of the sap, p. 121.; origin of buds, p. 143.; flowers not stunted branches, p. 169.; remarks on the idea that the new zone of alburnum is formed by descending fibres, p. 212.; which idea Mr. Main is decidedly opposed to, and combats in several places. Foreshortening, in pruning, does not give clear-grained timber, p. 233. The propriety of decorticating trees considered, p. 287.

Harrison, Joseph, Gardener to Lord Wharncliffe, at Wortley Hall, Yorkshire: The Gardener's and Forester's Record. 8vo, in monthly numbers, 6*d.* each.

We have already (p. 352.) noticed with approbation Mr. Harrison's *Floricultural Cabinet,* and have now to make our readers acquainted with another component part of his *Gardener's Magazine.* A third part is to appear, to be exclusively devoted to giving accounts of Provincial Horticultural Societies, but of that we have not yet seen the first number. In the first number of the *Record* there is a very excellent paper on the spurring-in method of pruning the vine (see *Encyc. of Gard.* § 2984.), by our correspondent Mr. Appleby. Our readers will see, by our literary notices, that we are threatened with two other rival Gardener's Magazines, in all, eight! So much the better, say we; for by these means the taste for garden enjoyments, of which reading garden works is one, will be firmly and extensively rooted into the country.

Anon.: The Horticultural Journal, and Florists' Register of Useful Information connected with Floriculture, &c. Dedicated to the Right Honourable the Earl of Errol and the Vice-Presidents of the Metropolitan Society of Florists and Amateurs. No. I., July. London, 1833. Price 1*s.*

This publication has come before us without our being previously aware of its existence, and, fortunately, just in time for us to make it known to our readers. It contains in all 16 pages of letterpress, and a coloured plate of the Ajax heartsease, and another of Clarke's Pandora tulip. These two coloured prints had been previously published in the *Lady's Magazine*, from which work the plates have of course been borrowed. Of the 16 pages, of letterpress seven are occupied with floricultural information; the remainder with light diverting reading, in no way connected with the garden, save that a pleasant bower in a garden is a delightful place in which, in the sunny days of July, to sit and read.

The contents on floriculture are, an introduction to the work, remarks on the tulip mania, and on the Fanny Kemble tulip; of the latter a figure is promised for the next number. The editor writes in defence of the tulip mania in the following manner: — "We have as much right to laugh at an old booby, who, over his rusty coin cabinet, feasts his eyes on his fifty-guinea old coppers and sixpences, or at the silly buyer of daubed canvass at a thousand guineas a yard, or at the madman who gives a thousand pounds for a horse to break his own neck with, as they have at the 'fool who gives twenty or fifty guineas for a tulip.'" We have heard nearly the same general sentiment expressed by Mr. Groom and other florists. To these remarks follows a description of each of the plants figured in the plate; then an account of the late shows of the London Horticultural Society, and of those of the Metropolitan Society of Florists and Amateurs; then of the annual meeting of the East London Ranunculus Society; also of that of the Sunbury Horticultural and Florists' Society. To these notices follow a "new list of chrysanthemums," taken from the *Gardener's Magazine* for April, p. 221.; an announcement of "meetings to come;" remarks on "choosing judges;" a review of Mr. Hogg's new book on floriculture, which work is censured; and a short review of Mr. Weedon's book on cucumbers, which is praised.

Maund, Benjamin, F.L.S.: The Botanic Garden. In monthly Numbers, each containing one plate bearing figures of four plants, descriptions of the four plants, and an Auctarium of two pages, for the communication of notices deemed of interest to cultivators. Large paper, 1*s.* 6*d.*; small paper, 1*s.*

This periodical is too well known to justify our mention of it among new publications, were it not that, on June 1., it appeared with an addition of two pages of miscellaneous information on floriculture, and that the two additional pages, which Mr. Maund denominates an *Auctarium*, are to be continued in every future number, and similarly occupied. This addition to the contents of each number must needs be welcome to the purchasers of the work.

From the Auctarium in the June Number, and that in the July one, it appears that the *Gardener's Magazine* is likely to be liberally drawn on for the supply of the information to be communicated in the Auctarium. This compliment to the merit of our work we might not have cared to note, save with the silence of self-approbation, but for the following truly notable, yet ominous, notification made by Mr. Maund on the cover of his June number: — "As we do not like to mar the pages of the Auctarium by references to authorities, &c., we will give them, when necessary, on the wrapper; and, perhaps, also with the index: but this must generally be done on a wrapper subsequent to that enclosing the information, as they will oftentimes be printed before the arrangement of the Auctarium pages." As in the above remarks, the words "when necessary," "perhaps," and "a subsequent wrapper," leave to the uncertainty of a "perhaps" what, and when the, citations of the authorities, or sources of information, are to be made, we may now notice that the first paragraph in the Auctarium for June, on growing "cabbages from slips," is derived from Mr. Kendall's communications in the *Gardener's Magazine*, Vol. IX. p. 226.; and that a good share of paragraph 8., on devices for iron supports to flowering shrubs and plants, in the July Auctarium, is derived from the *Gardener's Magazine*, Vol. VII. p. 284. Vol. VIII. p. 554. 557. 679.

Henslow, Rev. *J. S.*, M.A., Professor of Botany in the University of Cambridge: On a Monstrosity of the common Mignonette. 4to, 6 pages, 2 plates. Cambridge, 1838.

This pamphlet is not purchasable except by buying Part I. of Vol. V. of *The Transactions of the Cambridge Philosophical Society*, in which part it forms the 4th paper: it was read before the Society on May 21. 1832. The structure of the flower in the genus *R*esèda has been differently explained by Drs. Brown and Lindley, the latter deeming it a compound flower, in which much metamorphosis and abortion obtains, and Dr. Brown maintaining that the structure of the flower is simple. Professor Henslow has exhibited, in fullest detail, in six pages of text, and thirty-eight figures, the conditions in the structure of a most remarkable monstrosity of *R*esèda odoràta, with a view to its relation to the question at issue. The conclusion he has drawn agrees with Dr. Brown's, and is opposed to that of Dr. Lindley. The pamphlet, or paper, is an interesting one to students of the anatomy and physiology of plants.

Rivers, T. and Son, Nurserymen: A Catalogue of Roses cultivated at the Sawbridgeworth Nurseries.

This we consider to be the most useful catalogue of roses in the English language; because the species and varieties are not only classed, and their colours given, as in our *Hortus Britannicus,* and in the *Hortus Addlestonensis* and *Hortus Duroverni,* but a short description of each flower is added. To convey an idea of the completeness of the assortment, we may mention that there are 13 varieties of hardy climbing roses; 17 of climbing China roses; and 16 of *R*òsa índica odoràta. A strong recommendation to this catalogue, in our eyes, is, that it does not contain half the number of varieties that are to be found in the French, and in some of the English, nursery lists, but a careful selection of sorts which are perfectly distinct. Every person intending to purchase roses should possess himself of this catalogue, which may be done through the post-office, as it is only a single folio sheet printed on three sides.

The following very judicious observations on the culture of roses are placed at the end of the lists. They contain the essence of all that can be said on the subject: —

" The rose, perhaps, more than any other ornamental shrub, requires constant culture to make it bloom in perfection, unless in the most favourable rose soils, which, in my opinion, is a rich cool loam. Roses require to be removed, and to have their roots trimmed, every third year: when taken up, these roots will be found to have lost most of their fibres; but, naked as they are, if they are then trimmed, the branches thinned and shortened, and plenty of well-rotted manure mixed with the soil they are planted in, the plants will be quite renovated, and bloom as fine, and often finer, than young plants. This treatment, perhaps, is most applicable to standard roses; with dwarfs the trouble is too much, unless with the choicest sorts, as they are sold at such low prices, that it would be cheaper to make a new plantation. In very clayey cold soils, the finest compost possible for roses is well-rotted dung and common pit sand (*not road sand*), equal parts. When standards are removed, they ought to have their heads thinned, and shoots shortened *early* in spring. A mistaken notion, which I often find current, is, that they ought to "push," i. e. begin to shoot, before the branches are shortened: this has sealed the doom of very many standard roses. I have an idea that standard China roses, of the most choice varieties, with stems from 3 to 4 feet, might be made highly ornamental summer plants; they are too tender to endure the ordinary severity of our winters *as standards*, but, if taken up every autumn, put into large pots, and placed in a dry shed, they would remove into their summer quarters in the spring with perfect safety, and bloom much finer than if exposed during winter, and their shoots injured by the severity of the weather. The varieties of *R*òsa índica odoràta bloom exceedingly well in this manner, as do all the strong-growing varieties of China roses. *R*òsa Grevíll*ii* and multiflòra also form curious objects, and bloom very freely, when grown as standards. The hardy climbing roses, and several of the climbing China roses [marked *h* in the catalogue], form fine objects when trained "*en pyramide*," i. e. in the French manner of training pear trees; but when trained in this manner, as climbing roses do not form a stem strong enough to support themselves, the strong central shoots must be tied to iron or wooden stakes, and the side shoots from them shortened every season: in this manner, with proper culture, they will form pillars of roses, from 6 ft. to 10 ft. in height. — *T. R. jun.*"

Lloyd, Richard W., Esq.: A Practical Treatise on Agriculture; briefly pointing out certain Practices which should be adopted, and some which should be discontinued, with a view to the Improvement of Arable Land, &c. 8vo, pp. 52. London, 1833.

The object of this tract is, to "supply the ignorant with a plain and simple insight into the principles of Practical Agriculture, respecting which the great majority of farmers are entirely in the dark." The author seems to have adopted a very suitable mode of attaining his object; and, as his pamphlet is circulated in Wales, both in Welsh and English, we trust it will do much good. The anticipated results would be greatly accelerated by such an exhibition at Chester, every winter, as that held at Stirling. (See p. 447.) We wish we could induce Messrs. Dickson, the eminent seedsmen of the former town, to take the hint.

Art. II. *Literary Notices.*

The Caledonian Gardener's Magazine, in quarterly 8vo Numbers, 3*s*. each, is projected at Edinburgh. According to the prospectus, "most of the articles in English Gardener's Magazines being adapted to a climate warmer than that which lies north of the Tweed, they are altogether unfit for Scottish practice: the *Caledonian Magazine*, therefore, will be confined exclusively to communications adapted to the climate of Scotland."

The Young Gardener's Monthly Magazine, in monthly Numbers, small 8vo, 6*d*. each, will appear in London in October next. It will embrace every department of Gardening, and will include Natural History, Cottage Economy, Agriculture, and Rural Architecture, as far as these are necessary for the instruction of gardeners, and are connected with life in the country. The object of this work will be, less to include an extensive correspondence, than to describe the different operations of gardening, and explain them scientifically.

J. F. Royle, Esq. F.L.S. &c., late Superintendent of the East India Company's botanic garden at Saharunpore, is preparing for publication Illustrations of the Botany and other branches of the Natural History of the Himalayan Mountains, and of the Flora of Cashmere. The coloured lithographed figures, exhibited as specimens, of this work indicate that it is to be produced in a superior style.

The Prince de Salm-Dyck is about to publish Monographia Generum et Specierum Aloes et Mesembryanthemi Iconibus illustrata: A Monograph, illustrated by figures, of the Aloes and Mesembryanthemums. — This will be gladdening news to every botanical reader. The Prince de Salm-Dyck is well known in this country as a promoter of botany, and as having paid especial attention to the aloes and mesembryanthemums, of which he cultivates an extensive collection, and has done so for many years. He has long been in a course of correspondence and interchange with A. H. Haworth, Esq., Chelsea, as the writings of this gentleman on aloes and mesembryanthemums, of which he also grows an extensive collection, attest; and it may be pretty safely asserted, that, among the botanists now in the world, none are so intimately acquainted with the plants spoken of as are Mr. Haworth and the Prince de Salm-Dyck. At length the prince is about to publish the result of his experience on them, and the arrangements for the publication are committed to Arnz and Co. of Düsseldorf; who give, in their prospectus, the following information on the terms and intentions: — The aloes will be the subject of one monograph, the mesembryanthemums of another.

Every species and every principal variety in each genus will be described, and represented by a figure drawn from nature. Every consideration has been employed to lessen the costliness of the work, so as to make it universally obtainable: its size such as will just suffice to exhibit the objects; the figures printed in black in one series of copies; and, in another, with one leaf and some of the petals coloured; and, in another set, at the expressed request of subscribers, wholly coloured. The two monographs will be published together in half-yearly numbers, and the publication will be commenced as soon as a sufficient number of subscribers has been received. Each number of the work on aloes will contain 24 figures, and its price, with the figures uncoloured, will be 10 francs; coloured, 20 francs: and each number of the work on mesembryanthemums will contain 36 figures; uncoloured, 15 francs; coloured, 30 francs. The two works will give the description of about 550 species, and will be finished in about five years. Subscribers are requested to add their titles to their name and address. It is stated, from the author, that he will receive any suggestions which subscribers may be disposed to communicate, either in relation to the text or to the figures. This modesty in a prince is very commendable.

Mr. Hogg, Florist, Paddington, has just published 500 copies of the Supplement to his *Practical Treatise on the Culture of the Tulip, Auricula, Ranunculus, Georgina or Dahlia, &c.* The Supplement, it is stated, "contains a clever and interesting article on the cultivation of tulips, contributed by the late William Clark, Esq., of Croydon." The bill states that this work "is published:" had Mr. Hogg sent us a copy of it, we might have noticed its contents. It is remarkable for a "Supplement" to an existing work on floriculture to be sold at seven shillings: this is the price of a good-sized volume.

A popular Magazine on Architecture, Building, and Furnishing, and the arts and sciences connected therewith, conducted by J. C. Loudon, will appear in January next, and be continued quarterly. The objects of this work are, to spread a taste for architectural improvement, and, at the same time, to serve as a perpetual supplement to our *Encyclopædia of Cottage, Farm, and Villa Architecture and Furniture;* in the same way as the Gardener's Magazine forms a perpetual supplement to our *Encyclopædias of Gardening, Agriculture, and Plants.* To attempt an architectural magazine, in these times, may be considered a bold experiment; however, we have received such assurances of support from the contributors to, and readers of, our *Encyclopædia of Architecture*, that we have no doubt of success.

MISCELLANEOUS INTELLIGENCE.

Art. I. *Domestic Notices.*

ENGLAND.

A Metropolitan Society of Florists and Amateurs has been established, and held its first meeting at the Crown and Anchor Tavern on the 17th of June. The attendance was neither so good, nor were the articles so numerous, as we have no doubt they will be when this Society becomes better known. The queen is said to patronise this Society, and to have offered a piece of plate annually for the best show of tulips.

The Birmingham Botanical and Horticultural Society held their first public show, on June 19. and 20., at the rooms of the Society of Arts. A notice of the more remarkable objects shown will be given in our report of the horticultural shows. We shall here notice that upwards of 250 plants, in which there were 128 distinct species, were sent to grace the show, not to be exhibited for a prize, from the botanic garden at Edgbaston. "They," in the words of the report, "formed of themselves a splendid and highly interesting collection, and served to display to full advantage the skill and scientific culture of Mr. Cameron, the much-respected curator." The report communicates, as well, the following interesting information: — "No money prizes being offered at this show, a subscription was raised, chiefly among the members of the committee, for the purpose of presenting to those gardeners who distinguished themselves on the occasion some testimonial of approbation. Six gardeners were selected by the judges; and suitable presents, with inscriptions, are in course of preparation, and will be transmitted to them as soon as they are completed." The names of the gardeners, we have been informed, are, —

Mr. George Anderson, gardener to the Earl of Dartmouth.
Mr. William Carpenter, gardener to James Taylor, Esq.
Mr. Thomas Hetherington, gardener to W. H. Osborn, Esq.
Mr. John Smith, gardener to Mrs. Woolley of Summerfield.
Mr. John Webster, gardener to Mrs. Taylor of Moseley Hall.
Mr. Thomas Williams, gardener to J. Wilmore, Esq., of Oldford Mills.

They are to be presented with a teapot, sugar basin, and cream jug, suitably inscribed, as these are articles of domestic utility, likely to be brought forward when friends call and stop to breakfast or tea. So anxious, we have been informed, were the gentlemen to give some mark of approbation, that the greater part of the sum requisite to effect the above intention was collected almost as soon as the proposition was mentioned. — *Cond.*

An admirable Lecture on Horticulture was delivered at the Ipswich Mechanics' Institution, on March 18. 1833, *by Mr. Woollard.* — He traced the progress of the science from the earliest ages to the present period; and, from the able manner in which he managed the subject, we hope he will be induced to resume it on some future occasion. In 1814, Mr. Woollard, as he stated in his lecture, established a Florists' Society in this town; an example which was soon followed at Norwich, Diss, Colchester, Bury St. Edmunds, and other towns in this district. The two latter, however, have run before us by the establishment of botanic gardens, of which we are at present destitute. It is no creditable reflection, that in a town of such importance, we have been so long without; but we trust, that as this pursuit is now in almost universal esteem, we too, ere long, shall have an establishment of the kind. The lecture was extremely well attended, and appeared to afford much gratification. (*Suffolk Chronicle*, March 23. 1833.) [See p. 376.]

The Primrose Hill Botanic Garden, noticed Vol. VIII. p. 470., seems to be making progress; a meeting of subscribers having been held at Gray's Inn Coffee-house, July 18., at which a number of resolutions passed. Plans and estimates have been made out by W. B. Clarke, Esq., Architect, in order to give subscribers a general idea of what is intended. We sincerely wish the scheme success; but we must defer what we have to say on the subject till our next Number.

Provincial Botanical and Horticultural Gardens. — At a meeting of the Bristol and Clifton Botanical and Horticultural Society, held at Bristol, June 25., it is stated that proposals were circulated for establishing a new society with a garden. The following paragraph on the subject is extracted from the *Bristol Gazette:* — "The principal novelty of the day was the circulation of a prospectus for a new society, to be called the Bath and West of England Botanical and Horticultural Society, to which several members of the Linnæan Society and of the London and other horticultural societies have offered their best assistance. The principal outline of the terms proposed is, that a sum sufficient for the formation of gardens, &c., shall be raised by shares of ten guineas each, and an annual subscription of two guineas; and that holders of two or more shares shall receive from the gardens, under certain regulations, new plants, cuttings, seeds, &c. The authors judiciously remark, that, as the expenses attendant on the formation and subsequent permanency of the establishment must necessarily be great, nothing but the most extensive cooperation of persons of influence can authorise the attempt. We sincerely wish that this effort may be successful. It is lamentable that Liverpool, Manchester, Birmingham, Edinburgh, Glasgow, &c., should possess (and many of them have long possessed) botanic gardens, and that the distinguished cities of the West of England should be destitute of all similar establishments. Such a one has often been talked of for our own city, but hitherto with as little success as for Bath. We should rejoice to see a botanic garden flourishing at each of these cities; but as prudence often dictates to adopt that which is most practicable instead of that which is most perfect, it well deserves consideration whether the lovers of botany and horticulture in each place ought not, in prudence, to unite their forces, and establish a botanic garden at an intermediate point, equally accessible to the residents of each. A favourable situation for such a garden presents itself at Bitton, where there is an extremely rich soil of warm dry alluvial gravel, a favourable southern aspect, a warm climate, and the important advantage that a gentleman resides there who already possesses on the spot as rich and numerous a collection of plants as, perhaps, any private individual can boast of, whose zeal and activity in horticultural and botanical pursuits are indefatigable, who has an extensive correspondence with foreign botanists, and who probably could be induced, upon adequate terms, to impart not only his numerous plants, but his invaluable aid and superintendence as the curator of the intended garden. Under his care the successful progress of the undertaking might be considered as secure. The choice of this situation, which is nearly equidistant from Bristol and from Bath, for the site of a garden, would doubtlessly induce many inhabitants of Bristol and its immediate vicinity to be contributory to such a plan, who may otherwise be restrained from it by the lingering hope that they may one day more satisfactorily employ their funds in founding a botanic garden in their own city. If, however, the predominance of subscribers resident in Bath and its immediate vicinity shall fix the site of the garden in that place, we shall nevertheless sincerely rejoice that enough patrons of botany can be found to carry the undertaking into execution; and shall hope that the inhabitants of Bristol will shortly afterwards imitate their liberality and love of science, by founding a like institution."

We cordially agree with this writer in ardently desiring the establishment of botanical and horticultural gardens, and even zoological gardens, combined with breathing zones, such as Mr. Slaney is now legislating for (see Vol. V. p. 686.); and we have no doubt that when the system of managing towns is entirely altered, and their inhabitants, and those of their suburbs for a certain distance round, are governed by a municipal representative system, such gardens and zones will be established in not only every town, but in every large village. In the mean time, however, we protest against the idea of establishing a garden between two towns, which must necessarily be at such a distance from both, that only those who keep carriages, or can afford to hire them, could go to it. The idea appears to us most preposterous; and we are astonished how it could be entertained for a moment by any liberal editor. There is some excuse for the garden of the Horticultural Society of London being at a distance from the metropolis, on account of the smoke, and of the difficulty of procuring a suitable extent of good soil: but who can doubt that, if it had been established in the Regent's Park, for example, there would have been ten visiters for one that there is at present. The great object of a provincial botanical and horticultural garden is, not to try experiments or to introduce new articles into the country, but to make known what has been already introduced and approved of to the inhabitants of the given locality, and to all classes of them. How is this to be done, but by a garden so placed as that all ages and classes, and more especially women and children, may walk in it, and examine its contents? We know, from experience, that many who enter a garden at first merely with a view of taking exercise, by seeing the various flowers, and fruits, and other products of the different seasons, gradually become imbued with a taste for gardening. The proprietors of two of the most beautiful and well-stored flower-gardens we know (that of Mr. T. in Lancashire, and Mr. W. in Scotland), had their taste for floriculture thus awakened. — *Cond.*

A Botanic and Horticultural Garden is in contemplation in the neighbourhood of Sheffield. We understand there is some beautifully varied ground, well adapted for the purpose; and we trust so wealthy a town will not be long before it adds to its suburbs so agreeable and useful a feature. We recommend the parties concerned to take warning from the present appearance of the Birmingham Botanic Garden, and at the same time not to forget what we have said of that at Chiswick; two fine situations, both completely bungled by the manner in which they are laid out. The true remedy for this, and other evils to which such institutions are subject, is publicity in every stage of the business, from the choosing of the ground to the formation of the plan, and its execution.

A magnificent domical Conservatory is now erecting at Brighton, by subscription, under the direction of Mr. Phillips, the Author of *Flora Domestica*, and other works. We are informed that the ground plan is circular, and about 150 ft. in diameter, and the summit of the dome above 100 ft. in height. This, of course, will far exceed either the late conservatory at Britton Hall (now dispersed in sections over the country, forming various patchwork green-houses and vineries), Mr. Forrest's houses at Syon, or the wonders of the Enchanted Valley at Alton Towers.

A Notice of a destructive Hailstorm which occurred at Edgbaston on May 9. 1833. — Sir, The hailstorm about which you enquire occurred on the afternoon of May 9., and was of nearly half an hour's duration. The hail, or rather transparent ice, fell, of irregular forms, of from half an inch to an inch in diameter. The roofs of the conservatory, green-house, stove, propagating-house, frames, and the skylight of the dwelling-house had, upon an average, fully one half of the glass in them not only broken, but the greater portion battered completely in. The whole quantity broken was about 1600 square feet; a great proportion in a few minutes after the storm began. The hail storm was succeeded by torrents of rain, which, from the inequality of the ground, broke up the walks in several places, and removed a part of the soil in different parts of the garden. The storm was but partial, not reaching to the town. A similar one passed over the town six days afterwards, and broke some glass, but did not reach this garden. The general size of our panes is 6½ in. by 4 in.: in the upper part of the dome of the conservatory they are smaller.*

Species of Plants which withstood, unprotected, the Winter of 1832, *in the Botanic Garden at Birmingham.* — It may be interesting to inform you that the following plants stood out of doors last winter, without any covering, notwithstanding the open and exposed state of the garden: — Verbèna radìcans and chamædrifòlia, Wachendórfia paniculàta, Petùnia nyctaginiflòra, Digitàlis laciniàta, Ornithógalum corymbòsum, Sálvia fúlgens, Alstrœmèria acutifòlia, Lophospérmum erubéscens; O'xalis Bowièi, tetraphýlla, and violàcea; Fúchsia thymifòlia, Málva angustifòlia, Symphòria montàna, Piptánthus nipalénsis, Æthionèma membranàceum. The last three are, however, quite as hardy as the most common garden shrubs.

Hunnemánnia fumariæfòlia. — There are seedling plants coming up strong of Hunnemánnia fumariæfòlia where a plant stood last year, which would indicate that the seeds of this rare plant ought to be sown in autumn, and be grown as an annual; whereas, if the seeds be not sown until spring, few of them vegetate that season.

O'xalis floribúnda Lehm. is finer than those protected in the houses. I am, Sir, yours, &c., — *David Cameron. Botanic Garden, Edgbaston, Birmingham, June* 16. 1833.

A white-flowered Schizánthus. — Mr. Myles Priest, nurseryman, Reading, has raised a white-flowered Schizánthus, of which he, on June 24., sent us a coloured drawing. The branch depicted is an elegant object: the corollas are wholly white, except a pleasing and contrasting yellow spot at the base of the upper segment of each. The branch drawn exhibits the airy graceful character of S. pinnàtus, of which species the plant may be a white-flowered variety. Mr. Priest, in his note, has thus spoken of it: — "I believe it to be an entirely new and distinct variety. It grows about 2½ ft. high, from a single bottom stem, and has about twenty-four branches, or side-stems, each producing from twenty to thirty flowers: hence the plant had upwards of 600 flowers open at one time. It continues flowering for upwards of three months. It has, indeed, a very beautiful appearance, and cannot fail to be much admired. I purpose offering the young plants for sale. — *M. Priest. Reading, June* 24. 1833.

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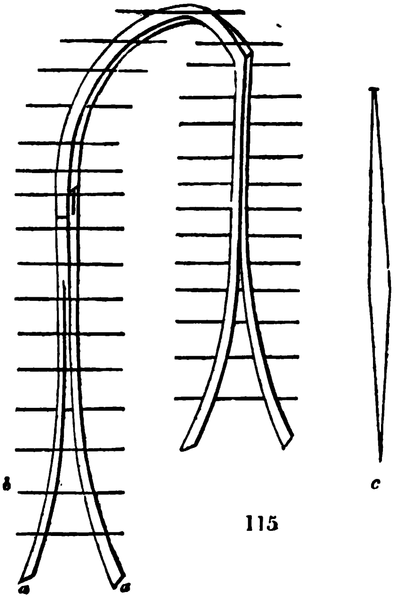
* *Hail Storm and Hurricane at Lancaster.* — In my last [dated May 4. 1833], I gave an account of the destructive hail storm which took place at Lancaster in April. [This account we have published in the *Magazine of Natural History*, vol. vi. p. 368.] We have since had a most dreadful hurricane, which has cut and destroyed the vegetation. It is rather remarkable that we should have it on the same day that you had it in London. A consequence of it here has been several shipwrecks on our coast, and several lives lost, both of the crews and of spirited individuals who endeavoured to render assistance to the ships in distress. — *M. Saul. Lancaster, June* 17. 1833.



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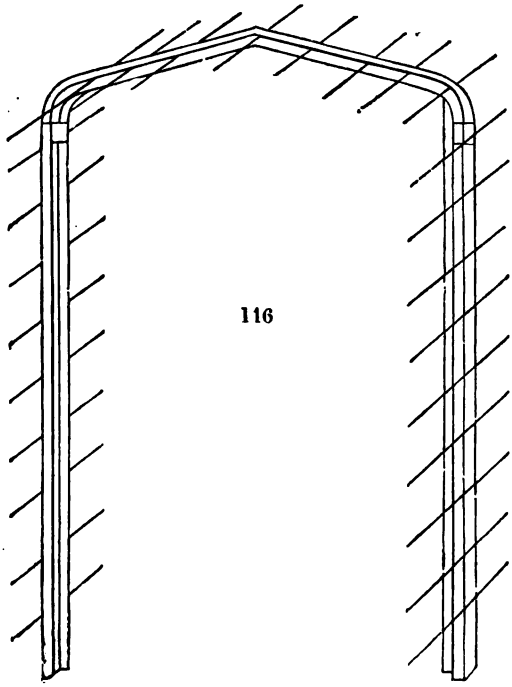
***A Plan of an arched Frame, to be made of Cast Iron, useful for bestriding Walks, and for sustaining Roses, Georginas, and other Plants to be trained over it.* — *Explanation.* *Fig.* 115.** *a a*, the uprights, which are 1¼ in. broad by a quarter of an inch thick; *b*, the cross bars; *c*, the form of the cross bars: they are about half an inch thick in the middle, and a quarter of an inch thick at each end; so that they will average about three eighths of an inch in diameter.

Fig. 116. shows that the uprights may be single; but they will be stronger if constructed as in *fig.* 115. The frame is cast in three pieces, the two uprights and top; and as there is a groove on the upper end of each upright to receive one end of the top piece, the frame, when brought from the furnace, will require nothing to be done to it except setting up, that is, putting together, and soldering the base of the uprights into stones.



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This frame may be produced at little expense. That the reader may compute the cost of it in his own neighbourhood, I attach tables of the weight of iron, as cast flat or cast round, required, according to the dimensions chosen for the frame: —

Length and weight of flat iron, ¼ in. thick, and 1⅛ in. wide.

ft.	lbs.	ft.	lbs.	ft.	lbs.
1	0·93	7	6·51	13	12·09
2	1·86	8	7·44	14	13.02
3	2·79	9	8·37	15	13·95
4	3·72	10	9·3	16	14·88
5	4·65	11	10·23	17	15·81
6	5·58	12	11·16		

Length and weight of round iron, ⅜ in. thick.

ft.	lbs.	ft.	lbs.	ft.	lbs.
1	0·360	7	2·57	13	4·78
2	0·736	8	2·94	14	5·15
3	1·1	9	3·31	15	5·52
4	1·47	10	3·68	16	5·89
5	1·84	11	4·04	17	6·25
6	2·2	12	4·41		

— *M. Saul. Sulyard Street, Lancaster, June* 17. 1833.

ART. II. *Calls at the London Nurseries, and other Suburban Gardens.*

THE Hackney Botanic Garden, Messrs. Loddiges, June 21. — The first thing which struck us, on our present visit to this garden, was the remarkably fine bloom of the ixias, and other Cape *Irídeæ*, in the open border in front of the palm stoves. This border, which is formed of heath mould and sand, is about 18 in. broad, and of the same depth. The bulbs were planted in a row, within a few inches of the front wall, upwards of ten years ago; during the whole of that period they have received little or no protection in winter, and they have bloomed most luxuriantly every May, June, and July. The plants have multiplied to such an extent that the whole border is now covered with them; and numbers have come up from self-sown seeds, among which are some new varieties. Altogether, this border, covered with bloom as it now is, is the finest thing of the kind that we have ever seen.

The first hot-house we entered is chiefly devoted to orchideous epiphytes; a number of which are tied on pieces of the stems or branches of trees with the bark on (about two or three inches in diameter and six or eight inches long), and suspended from the roof by wires. A small tuft of moss is first put on the upper side of the piece of wood; on this the plant is placed, a little green moss is then put over the roots, and the whole is tied firmly down with copper wire, so fine as hardly to be visible from below. The plants in this situation thrive most vigorously, sending their roots from under the moss down on each side, closely embracing the piece of wood, and each plant seeming as though it were riding astride on its little barrel-like wooden horse. This mode of growing epiphytes is, at once, very successful and very curious. The pitcher plant (*Nepénthes*) and the Sarracènia in this stove are growing and blooming freely. In the palm-house every thing is in its usual luxuriance; the ferns are in most vigorous growth, and the epiphytes flowering beautifully. Oncídium divaricàtum and flexuòsum, and Calánthe veratrifòlia, are eminently conspicuous. There is a beautiful new lycopodium (L. circinàtum), the thick-set branches of which we can only compare to fine chenille work in embroidery. A shower was let off, to show the effect to a stranger who accompanied us. We mention this to remind our readers of what has been done in this way, and what may be done again in lofty conservatories. The epiphytes which required props were elegantly supported by small twigs of bamboo, which are inconspicuous, found to be durable, and therefore very appropriate. The names of many of the plants were repainted with very thick black oil paint, on Wright's porcelain tallies; thin black paint will not do, the oil separating from it, and discolouring the whole surface of the tally): this mode has a much better effect than writing with black-lead pencil, which is neither so clear nor so durable, unless, indeed, it be varnished. In the camellia-house (which is a complete wood of this shrub, so much so that blackbirds have repeatedly built their nests and reared their young in it), a Wistària Consequàna runs along the roof in two horizontal lines, and has now its second crop of flowers. We were glad to find Mr. George Loddiges of opinion that this plant (now sold by retail at from 1*s*. 6*d*. to 3*s*. each, according to size) would soon be on every cottage front in the kingdom — a result which, our readers are aware, we have been desirous to bring about ever since this plant was introduced. Many of the heaths and New Holland plants were beautifully in flower.

The arboretum looks better this season than it has ever done since it was planted. Even the roses have not a leaf or a flower injured by insects, and the other plants have escaped equally well. The more lofty trees suffered from the late high winds, but not materially. We walked round the two outer spirals of this coil of trees and shrubs; viz. from *A*'cer to Quércus. There is no garden scene about London so interesting to us as this arboretum, and we only wish we could induce the planters of parks, shrubberies, and pleasure-grounds deliberately to examine it. To us it is perfectly astonishing that thinking men among gardeners, who know the contents of these eight acres just as well as we do, should continue to plant the commonplace and monotonous mixtures in shrubberies which they now do. We wish the ladies of gentlemen's families would visit this arboretum. We should like to see mothers who have a taste for plants take up the subject; for with mothers, we are persuaded, must commence all great and lasting improvements, not only in human conduct, but in matters of taste. Let the panorama of Niagara, now exhibiting in London, be examined, and then let those who set any value on the rich colours of the trees constituting the woods in the background of that magnificent picture say whether they would not desire to have such trees in their parks and pleasure-grounds. These trees consist of oaks, birches, liquidambars, acers, and a few others; and all of them may be seen named in Messrs. Loddiges's arboretum, and young plants of them may be purchased there, or in other nurseries. The acers, which furnish the yellows in the American forests, are in great luxuriance at Messrs. Loddiges's. The birches, which furnish the reds, yellows, and browns, are also very fine. Nearly twenty new species or varieties have been added to Cratæ̀gus; now forming, in all, between 70 and 80 sorts. What a treasure to those who are capable of estimating the opportunity of procuring such a collection! But how few are there who have this capability, and who have, at the same time, sufficient ground to allow the different sorts to attain their full size, and to display their separate natures! Again we say, that the taste must be originated in youth; but, when once called into action, what a paradise this island will become, displaying, as it will do, all the trees and shrubs in the world which will grow in temperate climates. The time is just commencing for the establishment of public parks, and gardens adjoining towns, in which the *beau idéal* of this description of scenery will be realised, at the expense of all, and for the enjoyment of all. The whole of the Regent's Park would be required to plant one of each of the species and varieties contained in Messrs. Loddiges's arboretum, at proper distances, varied by suitable glades; Hyde Park and Kensington Gardens would form another scene for a similar plantation; and a third might be formed of Greenwich Park.

These scenes of rural enjoyment, independently of their beauty to general observers, might thus be made schools of botany and gardening, and serve to encourage a taste for both subjects in the rising generation.

It has always struck us as remarkable that the genus *P*ìnus should thrive so well as it does amidst the smoke of Hackney. On this occasion we could not help noticing the luxuriant growth of the *P*ìnus Laríciо, which is more rapid than that of the Scotch pine: its timber, as we noticed in Vol. I. p. 79., is also said to be greatly superior. We are very desirous of directing the attention of planters to this most valuable tree, of which there is now a tolerable stock in the London nurseries, and which stock will, of course, increase with the demand. We only wish our readers would compare the height and annual shoots, both as to thickness and length, of this specimen in the Hackney Garden, with those of the *P*ìnus sylvéstris there. Among the new additions to the genus *P*ìnus, in Messrs. Loddiges's collection, is one of the finest plants of *P*ìnus Lambert*iàna* in the country.

Clapton Nursery, H. Lowe and Co., June 21. — As usual, there is a very fine young stock of the rarest and most valuable Cape and Australian plants, as well as a number from South America, sent home by Mr. Anderson, who was, till lately, Mr. Lowe's collector, when in that country. Mr. Anderson is now become a resident at Sydney, as a botanical agent, and well merits employment. Mr. Lowe is always remarkably successful in striking heaths: this year, he has been singularly so in inarching the present year's wood of camellias on the last year's wood of the stock. The operation is performed when the lower part of the young wood has attained a slight degree of firmness, and the point of the shoot is just developed, and no more. By these means, the whole of the returning sap is insured to the cicatrising of the wound, and to the promotion of the union of the scion with the stock. This takes place in the short space of three weeks after inarching, and in three more weeks the separation from the parent plant may take place. The advantages of the plan, Mr. Lowe says, are two: first, a whole year is gained in producing plants; and, secondly, there is greater certainty of success in the operation. In a small stove, facing the east, the orchideous epiphytes are planted among moss and brick rubbish, on a shelf against the back wall, close under the glass. They are thriving well; they are in the hottest part of the house, which, being low, and having in it several cisterns with water plants, is sure to have the air always moist. There is a beautiful new broad-leaved water plant here, which has not yet had a specific name, or been given out. It belongs to the genus Leptánthus, nat. ord. Pontedèr*eæ*. The flower bears a close general resemblance to Eschschóltz*ia*, and the leaves to those of *N*ymphæ'a or Villárs*ia*. It promises to be a plant of the very easiest culture, and will be a valuable addition to our stove aquatics. Along the midrib of the back of the leaf of this plant is an air vessel for keeping it floating on the surface. In the green-house there are a number of plants of Nierembérg*ia* grácilis in flower. Mr. Lowe informs us that this species will stand the open air during summer as well as N. phœnícea and *Petùnia* nyctaginiflòra (two plants which ought to be in every garden, whether large or small); it will, therefore, be a great addition to the flower-garden. In a cold pit, Mahòn*ia* rèpens has thrown out underground stolones, three feet in length, which have not yet emitted a single fibrous root. Mr. Lowe has a good stock of new and rare species of *Bérberis*, some of which have not yet received specific names. At the foot of a wall there is a magnificent Alstrœmér*ia*, quite new, which promises to equal, if not to surpass, the finest species in cultivation; it has not yet received a specific name. Against the same wall is a plant of the new *S*olànum críspum, introduced by Mr. Lowe, the stem of which is an inch in diameter, and which promises to become quite a tree. Mr. Lowe has a considerable stock of that splendid plant, Lobèl*ia Tùpa.* He has also a good collection of hybrid *G*ladìoli, and a new *Lá*thyrus, which resembles *L.* califórnicus. A very rare and high-prized *Lí*lium, purchased from M. Makoy of Liege, and somewhat in the style of *L.* longiflòrum, is just coming into flower. Among the alpines, there is a good stock of the Prímula cortusö*ides,* a plant much in demand in spring. The same may be said of *O'*xalis crenàta, which sold better last year than almost any plant Mr. Lowe had. In 1829, we gave a packet of the seeds of Wistàr*ia* Consequà*na*, which we brought from Carlsruhe, to this nursery, from which many plants have been raised, and there are a number still on hand. It is evidently the true Consequà*na*, though this was doubted by some when we brought the seeds over. The price of this plant is now reduced to 1*s.* 6*d.* to the trade. There is a large stock of *Rìbes* sanguíneum, which sells to the trade at 5*l.* per hundred. If it is not, therefore, soon as common as the black currant, it must be from want of knowledge, or want of taste. There is no doubt but that *Rìbes* speciòsum, which cannot now be purchased for money, will soon become equally common, and the same as to a new species only just sent home by Mr. Douglas to the Society's Garden. Mr. Lowe has one vigorous plant of *R.* speciòsum, which he is propagating as fast as nature and art will permit. This species being an evergreen, it does not propagate readily by cuttings taken off in spring; but will no doubt succeed well by autumnal cuttings, treated like those of the common laurel; or, what we should prefer, by cuttings of the young wood during summer, planted in sand under a bell glass. Mr. Lowe and other nurserymen are now propagating it chiefly by layers. Among the pans of American seedlings we noticed one filled with Gaulthèr*ia Shállon,* from seeds ripened in the Glasgow Botanic Garden. Three parallel ranges of pits here have been heated by hot water from one boiler, by Mr. Kewley. The work is admirably executed, in the siphon manner, and it cost so moderate a sum, and requires so little fuel and labour, that Mr. Lowe considers that he saved the whole expense in one season. These pits were before heated by dung; the prime cost of which amounted to nearly 40*l.* per annum, independently of the expense of wheeling it in, putting it in place, turning, stirring up, &c., and taking out when done with; add also that at a certain season every spring, when the occupiers of the numerous villas in the neighbourhood are making up their cucumber beds, not a load is to be got under double or treble the ordinary price, and sometimes not for any price, and thus a great risk is incurred of checking cuttings or seedlings at the time when a trifling check might destroy them. The heat from the hot water is found to be, in all respects, as congenial to young plants as that of the dung; and, therefore, the substituting this mode of heating for dung, in many cases, is well deserving of imitation both by nurserymen and private gentlemen. Mr. Kewley's apparatus is most scientifically arranged; all the three ranges of pipes are exhausted by one air-pump, communicating with them by small leaden pipes, half an inch in exterior diameter. A great part of the business of this nursery is with the foreign trade, for which Mr. Lowe has the great advantage of a foreman who has been some time in a French nursery, and who not only speaks French, but gardeners' French. Mr. Lowe had, the morning we were with him, just received a letter from Mr. Anderson, at Sydney, stating that he had shipped a number of boxes of seeds for him, and an extensive collection of dried specimens, consigned to Mr. Hunneman, the well-known botanical agent, for sale. Mr. Anderson also mentioned the safe arrival of Mr. Richard Cunningham, and the prosperous state of a nursery lately established at Sydney.

The Hammersmith Nursery, Messrs. Lee, June 19. — The show of roses here is, as usual, very fine. There is a collection of 30 or 40 sorts of China roses, standards of exquisite beauty. So comprehensive have the variations of this species, or sub-species, now become, that they not only include yellows, and cream-coloured and scented sorts, but moss roses, large and small varieties, scented and unscented, white and red. The carnation-striped and the tricolour roses have not flowered so well as they sometimes do, but sufficiently so to show the distinctness of these varieties. Among the other roses the crimson perpetual made the most handsome appearance; and it is indeed one of the very best of roses, flowering from June till it is checked by the frost. Among the shrubs, Halimodéndron argénteum budded standard high, upon a laburnum, is profusely covered with flowers, forming a pendent robe of purple and silver. It is astonishing that this tree, and the standard purple cytisus, are not more common on lawns. The silvery glistering foliage of the Halimodéndron is alone sufficient to render it highly valuable. The numerous large specimens of Magnòl*ia* purpùrea, noticed in our last (p. 343.) as being profusely covered with bloom, still present a number of flowers, as do those of M. glaúca and M. tripétala. M. conspícua was magnificent in April. In speaking of magnolias, we may add, that M. macrophýlla is now in bloom, both at the Duke of Devonshire's, at Chiswick, and at Mr. Gray's at Harringgay; but we shall not be able to see these specimens in time to give a notice of them in this Number. The chimney of one of the green-houses, in the Hammersmith Nursery, is so brilliantly clothed with golden ivy, that people looking at it from the public road generally take it for some creeper profusely covered with rich yellow blossoms. We wish some gardener would insert some buds of this and other varieties in the common giant ivy, by way of experiment. There is an avenue here of the ancient genus Robín*ia*, including the genera separated from it, viz. *Caragàna*, Halimodéndron, &c., budded standard high, on laburnums, which well deserves the examination of the purchasers of rare, singular, and most beautiful shrubs for lawns. The azaleas and rhododendrons bloomed with great luxuriance, and the andromedas are now very fine. A. dealbàta, one of the most beautiful of them, is profusely covered with its powdered leaves and white globular blossoms. In the hedgerow next the road are some specimens of ornamental trees; one of them, a broad-leaved weeping elm, is of so singular and marked a character, that we intend, some time or other, to give a figure of it. It would be an admirable tree for a lawn. There is a remarkably complete collection of pansies. In the conservatory, the plants (which were being put into the soil, by Mr. Kennedy, on the day, in April, 1804, on which we first visited this nursery) are, as usual, vigorous. The Metrosidèros, with its bright scarlet bottle-brush-like blossoms, is now particularly conspicuous. Against the wall in the vinery, a *B*ryònia quinquefòlia, a free-growing creeper with showy yellow flowers, not very common, had a good effect. We were happy to see a good stock of those favourite plants of ours, O´robus vàrius and Jeffersòn*ia* diphýlla, in the beds of herbaceous plants.

Garden of the Horticultural Society. — We have made several visits to this garden in the course of the months of May and June. On the whole, it looks exceedingly well this season, though some things in it have suffered considerably from drought. It is kept in remarkably good order, considering that there is really not a sufficiency of hands, by half a dozen at least, for so many acres. In consequence of this want of strength, a part of the kitchen-garden is necessarily left uncropped, which may be considered a loss to the public, because, if there were, at all seasons, standing examples of the best varieties of culinary vegetables, well grown, in this garden, it would certainly tend to create a taste for them. As the Society is rapidly getting rid of its debt, we hope many years will not elapse before this part of the duties of the establishment be restored. The trees in the arboretum are thriving, many of them have now attained a considerable size; so much so, indeed, that in most of the clumps they are crowding each other, so that the characteristic forms of the individual species will soon be lost. We intend, before this is the case (the permission of the council, of course, being first obtained), to have portraits of a good many of them taken, and to draw up an account of each species, stating its height, age, the length of shoot which it makes each season, the time of foliation, the colour of the buds and spray in spring, and the defoliation, and colour of the leaves in autumn. This, with a number of other particulars of a popular nature, we intend to prepare, so as to be able to give to general readers, and especially to architects and lady gardeners, a useful knowledge of 500 or 600 of the trees purchasable in British nurseries. We intend to publish this, along with engraved portraits of the trees, all drawn to one scale, so as to show the comparative heights at the same age, in our forthcoming *Encyclopædia of Landscape-Gardening and Garden Architecture.* We had portraits of all the trees in Messrs. Loddiges's arboretum taken in 1831, and a number of observations made on the trees in the arboretum at Kew and other places in the same year, which we intended for an *Arboretum Britannicum* (see Vol. VI. p. 718.): we have, however, entirely given up that work, finding that Dr. Lindley has long had a similar one in contemplation; and we mean to confine ourselves, as to what we say of trees in the *Encyclopædia of Landscape-Gardening*, to the consideration of their effect in landscape, and their value as timber, and for shade and shelter. In short, we shall chiefly treat on what may be termed the popular qualities and economical relations of trees and shrubs. We cannot help repeating our expression of regret that the trees and shrubs in the Chiswick arboretum were not distributed round the circumference of the entire garden, in which case they might have grown for many years without touching each other, and a really useful knowledge of their forms, colours, and effect in landscape, might thus have been obtained by the public. Had the Society taken our advice, and begun to alter the garden according to our plan, or any other calculated to display these trees to advantage; even if they had only executed a small fractional part of it every year, the landscape-gardener would have had confidence in the final result. He would have visited the garden, season after season, delighted at seeing the trees gradually developing their shapes and characters; while the public in general would have been equally delighted at always finding something new going on; whereas, now, there is no thinking gardener who cannot foresee that in two or three years this arboretum will become nearly useless for every purpose of the garden artist.

In the orchard there is a great show of fruit on the apple trees, a tolerable crop of pears, plums, and peaches, but scarcely any apricots. This orchard, with the use that is making of it by Mr. Thompson, is now, indeed, the only truly valuable part of the garden, because it comprises such an assemblage of fruit trees as exists nowhere else in the world.

We mentioned (p. 234.) that a small house had been erected for orchideous epiphytes. The plants in this house have been lately so much infested by woodlice, that they have been obliged to be entirely removed, with all the material on which they were planted, in order to get the house thoroughly cleaned. The woodlouse seems a very simple insect to occasion so much trouble; but, we believe, it will be found one of the most difficult of all insects to eradicate. In hot-beds and common hot-houses it may be kept under by toads; but in a house full of chinks, crannies, and crevices, toads cannot get at it. Immersion in water, for several hours, we know, from experience, will not kill this insect; neither will watering it with lime water injure it. Strong tobacco water will prove poisonous; but this is not easy of application. The only effectual mode of destruction appears to be the application of some deleterious gas, that is heavier than atmospheric air; so that, after all, the clearing out of the house, though it may seem troublesome at first, is perhaps the shortest method of proceeding.

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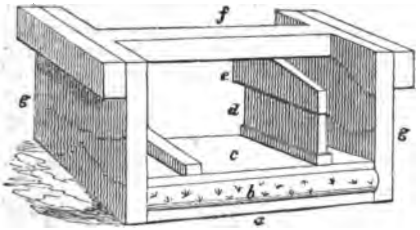
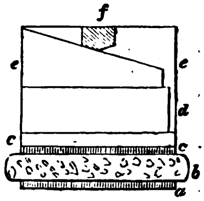
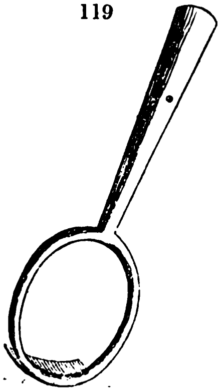


118



119



In the council-room we observed a very good apparatus for pressing specimens, which may serve, at the same time, as a seat, and is therefore, we think, a very fitting article of furniture for a gardener's lodge. *Fig.* 117. is a perspective view of this press, reversed, the part intended for sitting on being placed on the ground, in order to admit of putting in or taking out the specimens. *Fig.* 118. is a cross section, in which *a* is the board, which in the present position forms the bottom, and when the press is used as a seat, forms the top; *b* is a cushion, of any soft material, such as numerous folds of flannel, of uniform thickness, between which and the bottom board are placed the specimens to be pressed, in sheets of coarse brown, whitybrown, or blotting paper, according to circumstances; *c* is the board placed above the cushion to receive the pressure of the blocks (*d*) and wedges (*e*); *f* is a bar, firmly mortised into two end pieces (*g g* in *fig.* 117.), to confine the wedges. The same letters are applied to the same parts in both figures; from the first of which, indeed, without further description, any carpenter will understand how to construct such a press. The length and breadth should be such as to contain a sheet of paper of the largest size; and the depth should be that fitted for a stool, say about 18 in. The specimens, when gathered, are put between sheets of dry paper, pressed for a few hours, and then the sheets are taken out, and laid singly on a dry floor or on a table, or in the open air in the sun, and, after an hour or two's exposure, put in again; this practice being found to give them a certain degree of toughness. When specimens are to be attached by gum, toughness is less an object, and they may therefore be dried off at once between sheets of paper made very hot; by heating them in an oven, or before the fire, taking the papers once or twice out of the press, during the process of drying, and reheating them. We also observed a species of hoe, sent from Jersey (*fig.* 119.), which seemed to us better calculated for scraping the moss off trees than for hoeing soils.

Mr. Weltje's Collection of Pelargoniums, which we saw early in June, was very splendid. Twenty-three new seedlings of great beauty have bloomed this season for the first time, and will be sent out, as the phrase is, under fashionable or celebrated names. Mr. Weltje, by devoting himself almost entirely to the genus Pelargònium, has raised himself to a conspicuous place in the floricultural world as an amateur florist.

The Exotic Nursery, King's Road, July 13. — We never saw this nursery in such beautiful order, and all the plants in it, of every kind, looking so well as at present. The number of articles in flower in the green-houses and stoves, and among the green-house plants set out in the open air, is very considerable. An abundant second crop of blossoms is now coming out on the Wistària in the grand dome. Among the blue flowers of the green-house, those of Sóllya are now most conspicuous. Francòa appendiculàta is curious, and at the same time beautiful. A new prickly-leaved Solànum, raised from seed sent over by Mr. Cuming, is also in flower, and is very showy. The plants in the stoves, particularly the epiphytes and aquatics, are in extraordinary vigour; but we pass over these, and a thousand articles of interest, to notice the introduction of some new Chinese azaleas, to see which was the main object of our present call. The following notice of these long wished for plants is by Mr. Scott: —

" *The Chinese Azaleas lately purchased by Mr. Knight from Mr. M'Gilligan*, of the E. I. C. ship Orwell, are as follows: —

" Of the variegated azaleas, nine plants were shipped at Canton, two of which are now alive in England. Of the double red azalea, six plants were shipped, and one plant is now alive in England. Of the red azalea, lighter colour, four were shipped, and two survived the voyage in good health. Of the large-flowered azalea, six plants were shipped, and two are now in health. A yellow azalea, not the old A. sinénsis (at least it looks very different), one plant survived the voyage, and is now in health.

" A Juníperus, some varieties of Chrysánthemum, Enkiánthus, *Nelúmbium*, Renanthèra, and a few other Chinese plants, are all that arrived of those belonging to Mr. M'Gilligan; those shipped by the captain, &c., all died. Great care and attention must have been bestowed upon these plants during the voyage. Mr. M'Gilligan says they suffered more, after reaching the British coast, than during the whole voyage. When I saw them, on board the Orwell, they looked like plants injured by spring frosts.

" The Horticultural Society, you are aware, have long been anxious to get the variegated and other rare azaleas from China, but never succeeded in bringing home a living plant; and Mr. Reeves says he has shipped at least 500 plants, not one of which ever reached England in a living state. I have not seen the flowers of any of the above varieties, except one like A. phœnícea, and of the variegated variety of this Mr. M'Gilligan gave us some beautiful flowers, which had been gathered during the voyage; one flower, just taken from the plant, was in a glass of water, in good preservation. The colour of this variety varies in the ground from white to pale purple; in some of the lighter-coloured flowers the upper petals, which are nearly white, are beautifully pencilled with dark purple; the other parts of the flower are variegated with pink, and sometimes striped like a carnation. There are some of the flowers darker and more variegated than others, but they are all very delicate and beautiful; the flowers are of the size of the old A. índica. The plant has a smaller leaf and dwarfer habit than any other variety I know: perhaps its station is between A. índica and the old scarlet A. índica.

" These plants were growing in (Chinese) flat pots in a very strong clay [or fine alluvial] soil without any mixture; they had grown long in this soil in good health. The old plants are now in good health, and a number of smaller ones are potted off, and doing well; we therefore hope to preserve them through the winter, and by another season to do some good with them. Mr. Reeves says the variegated sort is more delicate than the old varieties of Azàlea índica.

"Mr. M'Gilligan (I know not if I spell his name rightly) has the entire merit of preserving these plants alive, and presenting them to the English gardens. He is purser to the Orwell, is a native of Banffshire, and is passionately fond of plants. Although the officers of this ship were partners in a small shipment of azaleas, their plants all died before reaching England, with the exception of one which lived a few days at Mr. Knight's, but died, as did also four of Mr. M'Gilligan's, in a very short time. — *A. Scott. Exotic Nursery, July* 13. 1833."

The floricultural world is much indebted to Mr. M'Gilligan, and we hope some botanist will perpetuate his name by applying it to some plant, either generically or specifically.

The Fulham Nursery. — Messrs. Whitley and Co. cultivate upwards of ninety hardy kinds (varieties and species) of Azàlea, and most of these blossomed freely and finely with them this season. The varieties differ, in the period of opening their buds, sufficiently to produce a welcome succession of these exquisitely elegant and beautiful flowers, whose charms are the more obsèrvable from the leaves being but partially expanded at the time the blossoms are displayed, from the beginning of May to July. Many species of the pine and fir tribe are grown in this nursery. Mr. Whitley conceives that, amidst the regard which the species of this tribe have of late received from amateur planters, *Pìnus Cémbra*, the Siberian pine, is not estimated in proportion to the beauty of its habits of growth, and to the merits of its timber: on the latter quality, however, we are at present but partially informed. We agree with Mr. Whitley in deeming the *Pìnus Cémbra*, or aphernousli as it is called (we know not the meaning), a tree of great beauty; and add, from the private letter of a gentleman distinguished for his love of the beauties of nature, the following words in its praise: — "I wish, if you are a lover of trees, as I am most enthusiastically, you could see my trees of the aphernousli. I have three upwards of 50 ft. high, in perfect health, and without a dead twig. . . . The tree is quite conic. It has some curious properties, such as closing up densely before snow, so as to prevent the weight breaking it." — *J. F. M. D. Westfelton, near Shrewsbury, Dec.* 9. 1832. Another pine which we ardently desire to see in extended cultivation is the *Pìnus* Larício, first brought into notice by Mr. Neill, in his *Horticultural Tour* in 1819, and recommended by us in the present and in former volumes. — *Cond.*

At Colvill's Nursery, at which we had not time to call, we observed (July 15.), in passing, *Yúcca* gloriòsa, or some species allied, magnificently in blossom; and plants of *Y.* filamentòsa, and a kindred species or two, are in flower beside it. The tip of the flowering scape of *Y.* gloriòsa must be 7 ft. or 8 ft. from the ground: we have never seen so fine a specimen.

Dennis and Co.'s Nursery, Grosvenor Row, Chelsea. — We had, on July 15., the pleasure to observe many objects which interested us; and, among the plants, the following deserve mention: — Thàli*a* dealbàta and Calóphanes (Ruélli*a*) oblongifòlia were flowering in a cool damp greenhouse. Of Cèreus speciosíssimus, numerous plants placed in the open air were displaying many fine blossoms. The ripe fruit of this and other species of Cèreus is most deliciously fragrant, as Mr. Dennis a good while ago made known to us. Fúchsi*a* globòsa in the green-houses was most beautiful; quite small plants of it were laden with flowers. A new and interesting kind of Fúchsia, as we guess, some variety of F. grácilis, was abundant in blossoms. Its petals, in many of the flowers, become unrolled and stand separate, and so contrast more livelily and airily with the crimson sepals: this character, added to the free graceful habit of the plant, renders the kind a very pleasing one. Among the species imported here by Mr. Gordon, one is presumed to be a species of the very rare and interesting labiate genus Gardoquì*a*: Mr. Dennis's plants of it have not yet flowered. The pelargoniums have passed the zenith of their beauty, but plants in blossom, of three of the choicer varieties, were shown to us; namely, habránthum, olýmpicum, and Lord Ravensworth. Pelargònium habránthum has a very large blush or rose flower, with a large dark spot in each of the upper petals; it grows and flowers freely: plants of it, according to their size, are priced at 21*s.* to 10*s.* 6*d.* each. P. olýmpicum has rich, very dark upper petals (the most so of the kinds in this mode), and its lower petals each marked with a spot; it flowers very freely, price 10*s.* 6*d.* to 5*s.* Lord Ravensworth is of the type shown in P. ignéscens, and has a fine scarlet flower, with a large dark spot in each of the upper petals, price 21*s.* a plant. Of plants of the cockscomb we had never before seen so many; a whole range of lights and the stage and shelves of a green-house were filled with them; all of them looked in high luxuriance, and their combs were looking beautiful. The globe amaranth (*G*omphrèna globòsa), the purple and the white, is the tender annual which Mr. Dennis is this year, next to the cockscomb, growing in the greatest quantity: last year he grew the ice plant in the same wholesale manner. Among the hardy plants, we were pleased with part of a bed of *L*ýchnis chalcedónica, white-flowered; Francò*a* appendiculàta, of which Mr. Dennis has a good stock of young plants; with *L*ílium canadénse, and *C*atanánche cærùlea bícolor.

It is well known that the flower-buds and the blossoms of georginas are frequently a good deal mutilated by the erosions of the earwig, and perhaps by those of the woodlouse also. Earwigs feed by night, and hide themselves by day; and, in conformity to this their habit, Mr. Dennis has had a thumb or sixty pot, with a minute tuft of hay in it, hung invertedly on the tip of the stake to which each plant of georgina is tied for support. The earwigs, on the arrival of daylight, pass up the stake, and hide in the hay in the pot, where they are readily discoverable for destruction.— *J.D.*

Weeks's Horticultural Bazaar. — Mr. Weeks has fitted up a range of buildings with glass on all sides, and a roof partly glazed and partly opaque, for the display of various horticultural contrivances, as well as for the sale of plants in pots, and of fruits and cut flowers. There are also rooms, in which fruits and confectionery may be eaten. The principal object, however, is to display, on an extensive scale, Mr. Weeks's newest mode of heating. This mode, which we have already noticed [p. 34.], is most immediate in its effects; and we have no doubt about its merits except as to the durability of the apparatus, of which Mr. Weeks, on his part, has equally no doubt. A year or two will decide this point; and we have suggested the idea of taking down that part of the apparatus which surrounds the fire, once a year, and examining it, in the presence of competent judges, in order to ascertain whether it is at all, and if so, to what extent, incrusted with earthy deposit. Mr. Weeks here exhibits a very beautiful application of his mode of heating to the warming of cisterns of water under pits, for growing melons, pine-apples, &c.; he has put the same mode in practice on a large scale at Mr. Tattersall's, in Lower Grosvenor Place, and is about to do the same at Woburn Abbey and other country seats. We are glad to find that Mr. Weeks is putting up a number of hot-houses, to be heated by his apparatus, in different parts of the country, so that this mode of heating will soon become extensively known.

London to Godalming, July 2. — This is the proper season of the year for observing, in the foliage of trees and shrubs, the effect of different shades of green, or what may be called their summer colours; and much instruction may be derived by merely observing, from the road, the different trees and shrubs in the small gardens of suburban villas and cottages. In short, the whole of the neighbourhood of London, including a diameter of 20 or 30 miles, may be considered as one immense garden, displaying within its precincts almost every variety of horticulture, floriculture, arboriculture, landscape-gardening, and garden architecture.

A young gardener, if he has a certain previous stock of initiatory knowledge, will gain more by devoting a few weeks, or months, to examining the London gardens, including market-gardens, nurseries, and private gardens of every grade, than he could by any other course of education whatever. Suppose an individual determined to improve himself in this way; he ought to take a lodging near the Horticultural Society's Garden for a year, and get permission to work there without pay, at such times as he was not making excursions: we say without pay, because that is not to be expected where the service must necessarily be very irregular. He ought then to visit all the principal suburban gardens at least seven times in the course of the year; viz., once in autumn, once in winter, twice in spring, and three times in summer. The landscape-gardener may gain much by merely looking at objects from the road; but the garden architect, the horticulturist, and the cultivator of flowers and trees, must enter the gardens, and converse with those at work in them. A very great beauty in the suburban scenery of London is the breadth of the hedge-banks, which are, in short, a species of shrubbery, or rather mixed borders of flowers and shrubs of many kinds, which afford a source of perpetual entertainment to the botanical observer. Very different are the roadsides in the neighbourhood of Edinburgh, where the hedges or stone walls occupy not more than a foot or two in breadth; or in the neighbourhood of Paris, where there is generally no fence at all, but a dry ditch, or, in the best situations, a row of elm trees. Were there no other difference whatever between the suburban scenery of these three cities than the appearance of the hedge-banks, that of London would be incomparably superior, in point of beauty and interest, to the other two. How meagre are the roadsides of the cultivated districts of Scotland, when compared with those of the most parts of England! yet there is a remedy even for the most meagre districts, and perhaps the time may come when a high degree of refinement shall have become so general that it will be applied. Instead of hedges of merely whitethorn, with one or two sorts of trees, at regular distances, and a grassy ditch, substitute numerous different kinds of hardy shrubs as a hedge, and trees of various sorts and standards, adding a row of herbaceous plants. Vary the walls by creepers and climbing plants of the shrubby kind, and by herbaceous creepers, alpine, and wall plants.

We took the route of Hammersmith, Putney Heath, Kingston, Thames Ditton, Esher, Cobham Street, Ripley, and Guildford; a delightful road, on the objects seen from which we could expatiate with pleasure to an extent which would fill this Magazine; but we will confine ourselves, as much as possible, to the places which we called at.

Richmond Park. — Simple and grand; part of the wall adjoining the road is varied by ivy of the common kind; we could not help observing, that if the giant ivy had been substituted, it would have formed a very different scale to all the objects beyond the wall; the ivy being in the foreground. This may afford a useful hint to landscape-gardeners. Giant trees, such as some of the rapid-growing poplars, improperly placed in a park or pleasure-ground of moderate size, or placed too near, or too far distant from a house, may derange the scale of the whole of the scenery. Even rapid-growing trees of moderate size, placed among slow-growing trees, will produce the same discordance.

Boyle Farm, near Thames Ditton. — We had occasion to visit this beautiful spot professionally in the course of the spring. It borders the Thames, at a fine bend of that noble river; and its two principal features are, on one side of the house, the river scenery, with distant prospects beyond; and, on the other, recluse home scenery, highly enriched with flower-gardens, American shrubs, rockwork, artificial hills and dales, and other kinds of garden decoration. The transition from the one kind of scenery to the other is made in a moment, and the contrast is proportionately striking. The place must have been laid out and planted with great pains, and carefully managed for a number of years afterwards. The grouping of some of the trees by the river side is excellent; but, in the interior, many of the trees have lately been cut down, or lopped in such a way as to destroy the screens which they formed for separating the different recluse scenes from one another, and thus materially to injure the beauty of the place.

Hampton Court. — We had occasion to go through this palace and its gardens in the course of the spring. We saw nothing new in the house; but, in passing through so many unoccupied and half-furnished rooms, we could not help noticing the want of real magnificence on the one hand, or of plain usefulness on the other. The best part of Hampton Court Palace is its exterior; which, though in faulty architecture, yet forms one grand mass suitable to the situation. The gardens are also excellent of their kind, and it is to be regretted that they are not kept up, either with sufficient care in point of order and neatness, or due attention to their original form. The walks are harrowed, or raked, instead of being rolled, and look more like newly sown ridges of corn land in a gravelly soil, than walks. The flowers and shrubs are straggling and tawdry, neglected or badly pruned, and either overgrown or deformed. The fountains, too, are in bad order; but in no country, we believe, are the palaces and gardens of kings kept in such good order as those of private individuals. After the first expense of building and laying out has been incurred, some change takes place; the successor, probably, dislikes the situation or the arrangements; and the whole is put into keeping, at the lowest possible rate of expense. Even the villa of a gentlemen of moderate fortune, who has probably no other residence, is generally in better order than any one of those of a very wealthy man, who has several, and a town house besides. For example, the Marquess of Westminster has several princely villas in different parts of the country, but there is not one of them kept up in such first-rate style as some of the small villas of retired tradesmen near manufacturing towns.

Esher. — The churchyard here is badly laid out, and is without trees, with the exception of a circle of hollies, which is planted round one tomb, and which shows what might be done. A man was rooting out mallows and other large plants which gave an appearance of rankness, and the churchyard being surrounded on three sides by a high wood added to this bad effect. Open, airy, and elevated situations are preferable for burying-grounds, and the surface should either be regularly mown, or, what is better, be grazed by a few sheep.

Claremont. — The lane leading from the village to the lodge is bordered on the left by a sweetbriar hedge behind a line of paling. The fragrance of such a hedge, in the mornings and evenings, and after rain, is most grateful: we mention this hedge, for the sake of stating that we think sweetbriar hedges are far less common in the neighbourhood of London than they ought to be. A marginal belt to a pleasure-ground, thinly studded with ornamental trees, with an undergrowth formed entirely of sweetbriar and other roses, would have a fine effect. We did not enter the gardens, Mr. M'Intosh not being at home.

Esher Place, J. Spicer, Esq. — This was the first place we saw of those described in Whately's *Observations on Modern Gardening;* and the name of it, or the appearance of the entrance gate at a distance, always raises in our mind sublime emotions. Having the *Observations* almost by heart before we left Scotland, the first thing we did, after our arrival in London, in 1804, was to make a walking excursion to see as many of the places described in the *Observations* as we could. The first place we called at was Esher Place, the next Claremont, then Pain's Hill, next Oatlands, then Southgate, and so on to Blenheim, and ultimately to Hagley, Enville, the Leasowes, Fisherwick, Piercefield, &c. The neighbourhood of Esher is, therefore, to us classic ground, and more especially Esher Place, which, in point of natural beauty, we greatly prefer to Claremont, though we like Pain's Hill far better than either.

Pain's Hill, Wm. Cooper, Esq. — Considerable improvements have been made here since it came into the hands of its present proprietor. The public road has been widened, and a new bridge, on the suspension principle, thrown across it, to connect the ground on both sides, in lieu of the old wooden one, formerly used for the same purpose. The effect of this bridge is exceedingly good in various points of view; for, even if there were very little ground on the other side, the bridge conveys the idea of the two sides being the same property, and thus strengthens the impression of extent. We had only time to look at the new conservatory, which has been added to the house, and to mark the very judicious manner in which the elevation of the latter has been improved, and yet its original simplicity of style preserved. There are here no half or three-quarter columns, or entire columns, without real use; three faults in architecture, that we are in constant dread of meeting with in the works of most modern architects. The conservatory is well stocked; as are the flower-beds in its neighbourhood and in front of the old conservatory. We missed the four beautiful therms and busts which used to decorate the piers between the windows of this venerable garden building, and hope they are carefully preserved somewhere. Every part of this place which came within our observation in this hurried glance was in the highest keeping and order: only two faults obtruded themselves on our notice, which we mention, because they may be easily remedied. The first is, that the terrace walk in front of the house branches off in an awkward manner, on the west side, nearly opposite the conservatory, whereas the whole line ought either to be straight, or of one uniform sweep; this being required by the character of grandeur and art which ought to be the object aimed at immediately in front of the mansion. The second is, that the suspending chains of the bridge rise abruptly out of the green turf, without the slightest architectural preparation, than which we know nothing more offensive to a cultivated eye. This can never be the work of an architect or engineer; it must have been done by one of the very commonest workmen employed in putting up the bridge. The chain ought to proceed from the centre of a proper basis of hewn stone, and that basis ought to be of a peculiar kind, to suit the apparent strain upon it. We hope, in the course of the summer, to take a more extended view of this, in our eyes, by far the most delightful and most instructive of all the places described by Whately.

Godalming, July 3. — We proceeded a few miles' distance to a very old family mansion, in the Elizabethan style, the proprietor of which was desirous of consulting us professionally. We were much delighted with the old buildings and gardens, and especially with a magnificent grassy terrace with a scarp, as a fruit wall; and a second terrace as a fruit and flower border, with a counterscarp of masonry, and a broad moat below. We observed here what we often find beside very old mansions, a sort of moat, of considerable size, devoted to the reception of those matters which in London all find their way into the common sewer. The effluvia proceeding from this moat, which adjoined the garden, was in this hot weather most offensive, and, but for the elevated situation, must have proved pernicious to the health of the family. In a very old plan which the proprietor showed us, which had been made for laying out the grounds of this place about the time of Charles II., there was an avenue of trees indicated, proceeding from the house up a steep hill, and gradually narrowing as its distance increased, probably with a view of assisting the perspective, and giving the idea of extent. It is certain that an avenue which faces us from the side of a steep hill looks longer, to the inexperienced eye, than one which stretches along a plain. To be convinced of this, we have only to compare the avenues at Hampton Court with those about Windsor Castle, or the one leading from Hamilton Palace to Chatelherault.

Villas in Godalming. — This evening, and the morning of the 5th inst., we visited two very beautiful town villas; the one about an acre, and the other about three acres in extent; both very judiciously laid out by Mr. Perry, and his pupil Mr. Varden, assisted by the ladies of the respective families. These villas show how much may be made of limited spots in the midst of a town; though, at the same time, it must be confessed that there are very few towns, indeed, so well adapted for this purpose as Godalming, from the beautiful scenery with which it is surrounded. We found Wistàr*ia* Consequà*na*, *C*aprifòlium flexuòsum, Magnòl*ia* conspícua, *Rìbes* sanguíneum, *S*piræ'a bélla (to which we could wish to add *S. ariæ*fòlia, a splendid, white-flowered, fine-growing shrub, of the middle size, and of the easiest possible culture), and others of our favourite plants, growing vigorously in these gardens; and, in both, indications of the commencement of arboretums, by planting rare trees and shrubs, so as gradually to substitute them for the common sorts, and ultimately to have not more than two or three trees or shrubs of a species in the whole garden; in short, to make each place a botanic garden. We also visited a third town garden, now laying out by Mr. Varden, who, when he once gets a tolerable knowledge of trees and shrubs, promises to be a very excellent landscape-gardener.

Milford Nursery, Mr. Wm. Young. — We were not aware, when we last visited this nursery (see Vol. VII. p. 365.), that it was so extensive as we now find it to be. It contains upwards of thirty acres, and, besides the pits, which we before examined, there are two large green-houses now erecting, and a small stove for ferns. All the numerous new plants sent home by Philip Barker Webb, Esq., and noticed in our Epsom lists in preceding volumes, were first received, and for the most part raised, in this nursery, before they were sent to Messrs. Young, at Epsom. We were shown a great number of new plants at Milford, which have not yet flowered, or been figured: but, as Mr. Young has promised a list of them, we shall confine ourselves at present to noticing the arboretum in the grounds of Mr. Webb. We were not before aware of the existence of such a treasure of trees and shrubs in this part of the country. They are distributed along the margin of the park, so as to form the pleasure ground, or shrubbery; and, for the most part, they are placed at such distances on the turf as will admit of their attaining something like their full size. The collection of oaks is remarkably complete, exceeding sixty species, almost every one of which has been raised from the acorn by Mr. Young. There are a great many of the genus *P*ìnus, of *A*'cer, of

*U'*lmus, and of *C*ratæ'gus. Among the acers, there is an old tree of *A*. rùbrum, which, Mr. Young informed us, formed a column of deep scarlet in the autumn, so as to be a conspicuous object at some miles' distance. We saw the first plant of Magnòl*ia* macrophy̆lla which was introduced into the country. It cost Mr. Webb fifteen guineas, about twelve or thirteen years ago. The soil where it stands seems too wet for it, because it is not nearly so large as several plants of the same species which we have seen; but, nevertheless, it was in flower. *S*órbus doméstica, planted by Mr. Webb's father, has attained the height of 30 ft., and bears abundant crops of fruit yearly; each fruit having generally not more than one perfect seed. It is singular that Mr. Young should never have thought of raising plants, from these seeds, of a tree so scarce that we do not believe that all the nurseries in Great Britain and Ireland put together could muster twenty plants. Indeed, if Messrs. Loddiges's arboretum were excepted, we question if they could muster ten. We are not a little proud of having two of these scarce trees here at Bayswater, one of which is now in fruit. Among the large trees are fine specimens of the tulip tree (in flower when we saw it), of the oriental and occidental planes, Robín*ia*, Gledítsch*ia*, *Sophòra*, &c., which, being neither very rare, nor remarkable in their growth, we pass over, to notice a black Italian poplar, nine years old, which, at 5 ft. from the ground, is 6 ft. in circumference, and in height is 50 ft. It was little more than a cutting when planted by Mr. Young, so that its leading shoot must have averaged upwards of 5½ ft. of growth every year. We hope to see this arboretum and the Milford Nursery again soon, and in future to have more frequent communication with Mr. Young.

Busbridge, near Milford, July 4. *Robert Munro, Esq.* — This is a very interesting old place, though lately much denuded of its most valuable timber. It belonged to Philip Carteret Webb, Esq., the grandfather of the present proprietor of Milford House; who, being (like his son and grandson) a botanist, had it laid out in the best taste of the time, viz. that of London and Wise, and planted with the rarest trees which the Brompton nursery then produced. The house, with the pleasure-ground scenery, is situated in a narrow valley or dell, through which had originally run a very small rill, which is now dammed up so as to form a number of canals and ponds of different artificial shapes, ornamented with fountains and cascades. The house is a plain modern erection, and is the only part of the place which is not decidedly ancient. The kitchen-garden we could imagine to have been laid out by Switzer, since it very much resembles one of his published plans, having one slope to the north, and another to the south. It occupies, in fact, both sides of the valley, and so steep is the surface, that the outer wall on the north side is backed up for three fourths of its height, as at Albury (see Vol. VII. p. 364.), with the earth of the rising ground behind. Within this wall there is another, which is a terrace wall, and is covered with vines, one of a sort, evidently of great age, since the trunks of some of them, at the surface of the ground, are nearly a foot in diameter. In an old flower-garden stands a half-ruined conservatory (the roof of which is removed every summer), which contains two standard olive trees, 15 ft. high, which bear every year; *L*aùrus índica, with a trunk nearly a foot in diameter; *C*hamæ'rops hùmilis, 15 ft. high; and Justíc*ia Adhátoda*, as high as the roof will permit, and which, like a number of old myrtle trees, has been cut in many times. One of the first trees of *Ailántus* glandulòsa ever planted in this country stood near this conservatory, till within these few years, when it met with an accident, and was cut down. This tree, we are informed by Miller, in his *Dictionary*, was raised by him and Mr. Webb, from seed, in 1751. We could not learn whether it had ever flowered at Busbridge;

in France it is stated that it bears some years male flowers, and some years female ones, and that about twice in ten years both male and female flowers appear at once, when seed is ripened. There are numerous silver firs in these grounds, of enormous size; their timber, we conjecture, not being esteemed sufficiently valuable for them to be cut down. The place, we understand, is for sale, and we sincerely hope it may fall into the hands of some person who will appreciate its value better than its present possessor appears to do.

Godalming to Epsom, July 5. — The road passes through Guildford, and along a tract of chalky table land, to Leatherhead. Between the latter place and Guildford there are several parks of considerable extent, the general scenery of which is seen from the road. The fields were covered with good crops, especially of wheat. Preparations were making for sowing turnips in every part of the country through which we passed; but only in one solitary field did we see a Scotch plough, and the turnips sown on raised drills. We observed a drill, resembling in appearance Morton's broadcast sowing-machine, from which the seeds were distributed in lines about a foot asunder, on a flat surface; a very bad mode, and much more expensive than the common equally bad mode of sowing broadcast. We would have no one attempt the culture of turnips in fields, who does not perfectly understand the Berwickshire system. The wild plants on both sides of the road, from Guildford to Leatherhead, are numerous, and some of them very beautiful. The wild endive and the small convolvulus were finely in flower. *B*allòta nìgra was every where more vigorous than usual. The wild carrot, the wild parsnep, and the wild lettuce, are all to be found in the hedges along this road. At Leatherhead the scenery takes something of a new character, becoming more enriched and woody. The cottage gardens are most beautiful, and we observed in them many of the new North American plants introduced by Mr. Douglas, which would seem to indicate the neighbourhood of the Epsom nursery, and the nurseries of Dorking. In passing Ashtead Park, we were much gratified to observe Mr. Hislop's dendrophylactics (see Vol. VI. p. 47.), continuing to protect the trees so humbly, and yet so effectually. There can be no doubt but that this is a most valuable invention for protecting newly planted trees, wherever appearance is an object.

Epsom Nursery. — There is much to be seen and talked of here. One of the first things which we ascertained was, that several lists, which Mr. Penny has sent us, of new things which have bloomed in the nursery during the last 18 months, have been lost; a circumstance difficult to account for, and which we deeply regret. We have, however, taken means to insure the safe arrival of Mr. Penny's lists in future. The nursery was in perfect order, and our excellent friend, Mr. Penny, as active and obliging as ever, and, as usual, overflowing with his subject. The roses here, as every where else, have bloomed better than they have done for many years. A number of the climbing sorts, trained as pyramids, were still covered with flowers. One Bengal flórida had 300 buds in one bunch, and the Queen of the Belgians, a beautiful new double variety of the Ayrshire rose, had 450. One plant of *R*òsa élegans had above 5000 flowers. The rose called Madame d'Arblay produced a shoot this year 16 ft. long, and nearly as thick as the wrist. Messrs. Young have lately begun to collect heartsease (a plant which has, during the last ten years, been elevated into the rank of a florist's flower), and have already 278 sorts. No. 84., Reform, we were told by Mr. James Young, was the best of the whole. Of the genus *Bérberis* there are now 12 rare species in this nursery, besides as many more of the common kinds: a few years ago, there were only half a dozen species in the country, five of which were rare. Of that exotic-looking evergreen, *Yúcca*, there is a very complete collection; and an ample stock of that most elegant species, *Y.* recúrva. A kind of tart rhubarb was pointed out to us by Mr. Young as having been raised from seed in this nursery; it is a hybrid between the giant rhubarb, and Wilmot's early, and it shoots up in spring three weeks earlier than the latter variety. It will be an invaluable addition to the kitchen-garden. We shall not attempt to go farther into details, and must refer the reader to Mr. Penny's list, p. 489.

Art. III. *Floricultural and Botanical Notices of new Plants, and of old Plants of Interest, supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; each monthly Number containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; each monthly Number containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, F.R.S., Professor of Botany in the London University.

Sweet's British Flower-Garden; each monthly Number containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Librarian to the Linnæan Society.

Loddiges's Botanical Cabinet; each monthly Number containing ten plates; 5*s.* coloured, 2*s.* 6*d.* partly coloured. Edited by Messrs. Loddiges.

Dicotyledonous Polypetalous Plants.

IX. *Cruciferæ.*

1827. *A'*RABIS.
16133*a* ròsea *Dec.* rosy-*flwd.* £ △? or 1 f Ro Calabria 1832. S s.l Bot. mag. 3246

"This beautiful and rare plant" is figured from the garden of the Rev. Mr. Selwyn of Kilmington, Wilts. "Flowers large in proportion to the size of the plant; collected into a dense rounded raceme or corymb, of a beautiful and rather deep rose colour." (*Bot. Mag.*, June.)

XLVI. C*ácteæ.*

1472. CE'REUS 12565 speciosíssimus
2 laterítius *Lindl.* brick-red st. ⊐ or 2 my.s Bri.R Eng.hyb. 1831. C l.a.lt Bot. reg. 1596

"This variety was raised by Mr. Pressley, gardener to Walter Boyd, Esq., of Plaistow, in Essex. It approaches C. Jenkinsòn*i* in many respects, but has paler and more brick-red petals. It was exhibited at a meeting of the London Horticultural Society, on May 1. 1832, and was much admired. No one seems to have any difficulty in cultivating plants of this description: nevertheless, it may be well to know that they succeed much better in a soil composed of a large proportion of leaf mould, mixed with sand and loam, than in any other compost. (*Bot. Reg.*, July.)

XLVII. *Onagràriæ* § *Onàgreæ.*

1183. *Œ*NOTHE'RA.
densiflòra *Lindl.* close-flowering ○ or 3? aut P N. California 1831. S s.l Bot. reg. 1593

A remarkable species, sent by Mr. Douglas to the Horticultural Society, in whose garden it flowered in 1832, and was proved to be an annual; and where it produced seeds in abundance. The stem is straight, and, in a rich soil, corymbosely branched from each of the axillary buds of the main stem, which in the genus *Œ*nothèra usually produce a single flower, being developed into a short branch that, itself, bears flowers in the axils of its own leaves. The stem-leaves are linear lanceolate, sessile, acuminate, and toothed. The flowers are small, but very numerous; and thus form a showy spike. In some particulars, this differs generically from the œnotheras already in cultivation. "Upon the whole, we incline to consider it a connecting link between Gaúra and Œnothèra." (*Bot. Reg.*, June.) Assimilates in habit to the genus Epilòbium. *Penny*, p. 490.

LXXIV. P*omàceæ.*

1512. *AMELA'NCHIER.*
flórida *Lindl.* many-flwd. ♣ or 6 my W N.W. Amer. 1828? L co Bot. reg. 1589

"A handsome hardy shrub, in the mode of the snowy mespilus." According to the figure, the leaves of the plant are not unlike those of hornbeam; and the white blossoms are borne densely in the racemes: these latter are shown 2 in. in length, and as if numerously produced. "The petals vary in length: in one of our wild specimens from Mr. Douglas [by whom this species was discovered and sent to England], they are more than three quarters of an inch long. . . . *A.* flórida is at once recognised by the shortness of its stamens; otherwise it is very near akin to *A.* sanguínea." (*Bot. Reg.*, June.)

LXXVII. *Leguminòsæ.*

1252. BURTO'N*IA.*
conférta *Dec.* clustered-*flwd.* ♣ ⊔ or 2 jl.s V S. W. N. Holl. 1830. C s.p Bot. reg. 1600

"A very pretty green-house shrub, forming a compact bush;" whose upright (at least, ascending) graceful branches, clothed with leaves not very unlike those of some species of heath, are crowned by a corymb of numerous, violet-coloured, pea-shaped blossoms. The heath-like appearance of the leaves is produced by the edges of every leaf being rolled back until they almost meet. B. conférta flowered in July, 1832, in the nursery of Mr. Knight, into which it had been introduced by Mr. Baxter. (*Bot. Reg.*, July.)

1262. PULTENÆ'*A.* [Bot. mag. 3254
subumbellàta *Hook.* subumbellate-*flwd.* ♣ ⊔ or 1 ap O.Y Van Die. Land 1831. C s.p.l

"For the possession of this highly ornamental green-house plant, the Glasgow Botanic Garden is indebted to Dr. Scott; who sent seeds from Van Diemen's Land, from which plants were raised that blossomed in April, 1833. The flowers are very bright-coloured, and almost every branch bears a head of them; and the variegated vexillum, or standard, is singularly exposed, so that its colours may be seen to the best advantage." (*Bot. Mag.*, July.)

Oxylòbium Pultenè*æ* is figured in the *Botanical Cabinet* for July, t. 1947. It is a pleasing shrub, whose leàves are disposed in a whorl of four, or of three; or scattered along the upright branches, which are severally (such as produce flowers) terminated by a head of yellow pea-shaped blossoms.

1985. *L*UPI'NUS.
17711. rivulàris *Lindl.* river *side* ⚘ △ or 3 my.s W.B.P California 1831. S co Bot. reg. 1595

Sent to the London Horticultural Society by Mr. Douglas. "It forms a handsome hardy perennial, flowering in great profusion from May to September. In some respects, this is even a better species for gardens than *L.* polyphýllus; for, if it is less stately, it is more gay in its appearance, and a longer flowerer. The diversity of colours in the petals [white, blue, and purple], no doubt, contributes very much to this effect; which is increased by the plant's loose, but not straggling, mode of growth. It increases freely by seeds and cuttings." (*Bot. Reg.*, July.)

1980. ADE'SMIA. [Bot. mis. 3. p. 193
Loudòn*ia* Hook and Arnott Loudon's ♣ ⊔ or 2 my.jn Y Valparaiso 1832. S p.l
Loudòn*ia a*nthyllöìdes *Bertero*, Gard. Mag. vol. vii. p. 690. note *.

A shrub with upright branches, which are copiously clad with hoary, pinnate, very silky leaves; and each of these, in the terminal portion of the branches, bears in its axil a pleasing yellow blossom. As the leaves are numerous, so are the flowers; and the number and beauty of both render Adésmia Loudòn*ia* an interesting, ornamental, and, therefore, désirable plant. In many of our winters, a pit, cold frame, or even a mat nailed against a wall, will probably preserve its life through the winter. Bertero, the late botanical traveller in South America, had thought the shrub to be the type of a new genus; but Dr. Hooker and Mr. Arnott have deemed it to belong to the genus Adésmia.

Mr. Thomas Bridges, collector of natural productions in South America, in a letter dated Valparaiso, Oct. 25. 1832, thus speaks on this plant: — "Bertero has dedicated a genus to Mr. Loudon; a beautiful plant found sparingly about Valparaiso, Loudòn*ia a*nthyllöìdes. If Mr. Loudon do not possess specimens [through the kindness of Mr. Hugh Cuming, he does], I will send one when I have returned from Chiloe."

*A*càcia decìpiens var. præmórsa, noticed in our last (p. 365.), is figured in the *Botanical Magazine* for June, t. 3244.

Mimòsa latispinòsa, the leaves of, have, we have been recently informed, been observed to possess a degree of the sensitive property which is so obvious and well known in the humble plant, Mimòsa pudìca.

CXLIV. P*ortulàceæ.*

3357. CALANDRI'NI*A.*
12175*a* speciòsa *Lindl.* showy O ✱ spl ½ my.o D.P N. California 1831. S s.l Bot. reg. 1598

C. speciòsa, on a hot dry bank or bed, when the sun is shining full upon it, with all its large rich crimson blossoms fully expanded, and reposing upon the soft velvety bed formed by its succulent leaves, is a most beautiful object. It is a hardy annual, propagated readily by seeds, which it bears in great abundance. It loves dry and exposed situations, and flourishes most in scorching weather; but it should be grown in tolerably rich soil; or, if in very poor soil, it should be sown thick. Under the former circumstances, it forms a patch a foot and more in diameter; in the latter case, its branches are not above two or three inches long, as in the wild specimens sent home by Mr. Douglas (who introduced the species), and in the London Horticultural Society's possession. It flowers in May or June, if sown early; or in September and October, if later. It is a plant eligible for cultivating on rockwork, in a sunny aspect. (*Bot. Reg.*, July.)

DICOTYLEDONOUS MONOPETALOUS PLANTS.

CLXX. E*ríceæ* § *vèræ.*

1173. *E*RI'CA § *Ovatiflòræ.*
quadràta *B. C.* square-*mouthed* ■ ⊔ or 1½ my W C. G. H. 1829. C s.p Bot. cab. 1943

"Introduced by Mr. Lee. It flowered with us abundantly in May. The flowers are very angular in their form; and the opening is perfectly square, which has suggested the specific name." (*Bot. Cab.*, July.)

E*ríceæ* § R*hodoràceæ.* Of *R*hododéndron campanulàtum, introduced, according to the *Hortus Britannicus*, in 1817, a figure is published in Loddiges's *Botanical Cabinet* for July, t. 1944. Messrs. Loddiges raised it from seeds in 1825. The head of blossoms depicted show it to be a superb species. The flowers are large, and in colour white; but clouded and margined with lilac or a pale purple. *R.* campanulàtum is a native of elevated situations in Nepal; and may, perhaps, bear our winters uninjured. "During the last two, several plants have remained well out of doors with us. The young leaves are at first purplish underneath; they then become milk-white; and afterwards, when quite hardened, change to a kind of tan colour. It flowered with us in April, kept in a cold frame. We have succeeded in propagating it by layers as well as by cuttings, in soil formed of loam and peat." Mr. Loddiges, sen., deceased, was the first who had for sale the *R.* pónticum, now so general an ornament to the flower-gardens of this country. "He also introduced the Chamæcístus caucásicum and chrysánthum; and, lately, we have added to the number barbàtum, camtchàticum, and lepidòtum; and one other unknown species from Nepal: none of which have yet flowered with us." (*Bot. Cab.*, July.) The *R.* barbàtum is planted into a bed of soil in one of Messrs. Loddiges's glass houses; and is especially striking, from the footstalks of its leaves being thickly and strongly bearded with hairs, which, if we have not remembered inaccurately, have each a glandular extremity.

11022*a* barbàtum *Lod.* bearded-*petioled* ♣ ⊔ or 3 ... ... Nepal 1829 ? L p.l Bot. cab. 1944. in text.
camchàticum *Lod.* in the text of *Bot. Cab.* 1944., in *Cat.* 15th ed. 1830.
lepidòtum *Wal.* scaly ♣ ⊔ or 4 ... Ro Nepal 1829. L s.p Royle Himal. bot.

CLXXI. *Epacrideæ.*

504. E'PACRIS. [3243
ceræflòra *Grah.* wax-flowered ♣ ⊔ or 2 mr.ap W Van Die. Land 1831. C s.p Bot. mag.

Raised at the botanic garden, Edinburgh. "Stem erect, branched, very slender. Leaves lanceolate, acuminate, mucronate, spreading. Flowers collected near the extremity of the branches, and borne on one side of them, white." (*Bot. Mag.*, June.)

campanulàta *B. C.* 1925.
2 álba *B. C.* white-*flwd.* ♣ ⊔ or 2 mr W N. S. W. 1830. C s.p Bot. cab. 1931

"We raised it, in 1830, from seeds from New South Wales; and it flowered in March, 1833. It is a very lively and beautiful plant." (*Bot. Cab.*, June.)

Styphèlia tubiflòra is figured in Loddiges's *Botanical Cabinet* for June, t. 1398. "Although this beautiful plant has long been known by descriptions and dried specimens, we had never seen it in a living state till we raised it from seeds in 1830. In March, 1833, it produced its elegant [crimson] flowers: the plant was erect, about 2 ft. in height, with many stiff small branches."

Leucopògon Ríchei is figured in the *Botanical Magazine* for July, t. 3251., and is accompanied by a most interesting memoir of M. Riche (in commemoration of whom the species has been named), and a digest of the synonymes which belong to this species: by the latter, it appears that the

Leucopògon parviflòrus of Lindley in *Bot. Reg.*, t. 1560., noticed in our p. 237., is but a synonyme of L. Ríchei Bot. Mag. 3251.

CXCII. ? *Loránthecæ.*

2060. *AU'CUBA* japónica is, in *Hort. Brit.*, p. 379., wrongly placed in the class Monœ'cia, and Order Tetrándria: it belongs to Diœ'cia Tetrándria; and it is presumed that only the female sex has been yet introduced into Britain; at least all the plants to be met with in blossom (and these are not few every spring) are of this sex.

CCVII. *Primulàceæ.*

Prímula amœ'na is figured in the *Botanical Magazine* for July, t. 3252., from the collection of Mr. Neill, Canonmills, Edinburgh; who obtained it of Mr. Goldie, who brought it from St. Petersburgh. It flowered beautifully in a cold frame, in April last, producing an umbel of eighteen perfect flowers. The corolla is very handsome, purplish lilac in bud, or, when recently expanded, more blue after a few days. The leaves resemble those of P. vèris (the common paigle of our fields); and suggest that P. amœ'na may be cultivated without much difficulty.

CCIX. *Gesnèreæ.* Gesnèr*ia* Douglàsii Lindl. is figured in Loddiges's *Botanical Cabinet* for June, t. 1939.; where Mr. Douglas, "the indefatigable traveller, whose name it bears," is justly eulogised as one "who, with most active zeal and industry, has done, and is doing, so much for botanical science: not merely by accumulating for the dead gardens of dry collectors, but for the living splendour of almost every garden in Europe; through the whole of which, the beautiful plants which he first discovered have been disseminated."

CCXI. *Scrophulárinæ.* § *Stamens only two, both bearing anthers.*

65. CALCEOLA'RIA 27993 purpùrea.
2 élegans *D. Don* elegant £ Δ or 1 jl.s Pa.P Chile 1832. D l.p Sw.fl.gar.2.s.199

"We are indebted to Mr. Wheeler, nurseryman, Warminster, Wilts, for the opportunity of giving a figure of this fine variety, raised by him from Chilean seeds, received from Mr. Hugh Cuming. We had the pleasure of seeing the plant when in full flower, and we have seldom witnessed any thing so beautiful: the large spreading panicles, with its profusion of blossoms of various shades of purple, contrasted with the dark green leaves and glossy stem, had a pretty effect. Like the other variety, this is also perennial; and will doubtless succeed very well in the open border during the summer months." (*D. Don* in *The British Flower-Garden*, July.)

Scrophulárinæ. § Four stamens, all bearing anthers.

1783. *MI'MULUS.*
róseus *Lindl.* rosy-*flwd.* ⚘ △| or 1 jl.au Ro N. California 1831. C p.l Bot. reg. 1591

A beautiful species, sent by Mr. Douglas to the London Horticultural Society, which at present does not possess very many plants of it. "It is found rather difficult to manage, or else the right mode of treating it has not yet been applied; for the plants that were kept in the open border, during the summer, by no means answered the expectations that had been entertained of it.... We suspect that it will grow better in a green-house than in the open air; just as is the case with the beautiful *M.* glutinòsus *W.*, from the same country. The plants in the garden of the Horticultural Society have been potted in loam and leaf mould, and have been kept under glass: they are succeeding much better this season than they did the last. (*Bot. Reg.*, June.)

CCXIII. *Solàneæ. § Seeds in a capsule.*

486. NICOTI*A'NA.*
pérsica *Lindl.* Persian ○ or 3 s.o W.G Persia 1831. S l.t Bot reg. 1592

The species which produces the far-famed tobacco of Shiraz: the common Virginian tobacco is also cultivated in Persia; but from the N. pérsica it is that tobacco of the finest quality is manufactured. "Seeds of it were brought from Persia by Sir Henry Willock, upon his return from his late residence at the court of Ispahan; and communicated to the Horticultural Society, in whose garden it blossomed in September and October last. It is rather a handsome annual; exhaling a faint but pleasant odour in the evening, at which time its flowers are in perfection. In the *Hort. Trans.*, new series, vol. i. p. 205., there is, by Dr. Riach, a full account of the Persians' method of manufacturing this tobacco. It appears to require a dark rich soil, and most abundant watering during all the season of heat." (*Bot. Reg.*, June.)

longiflòra *Cav.* long-*tubed* ○ or 3 jl.s W Buenos Ayres 1831. Sw. fl. gar. 2. s. 196

The tube of the corolla in this species is "4 in. or 5 in. long; the limb spreading, deeply 5-lobed [the tips of the five lobes would reach the circumference of a crown piece]; plaited; above of a clear white; underneath greenish, afterwards becoming of a dingy purple....... This curious species of tobacco forms another interesting addition to the flower-border, its long and slender-tubed blossoms being produced in great abundance, and for several months in succession. The singular phenomenon, common to many white and dingy flowers, of expanding only at night, or in cloudy weather, occurs also in this plant." (*British Flower-Garden*, June.)

3474. NIEREMBE'RG*IA.*
phœnícea *D. Don* purple-*flwd.* £ △| or 3 jn.o P Uraguay 1831. C p.l Sw. fl. gar. 2. s. 193
The Salpiglóssis integrifòlia of Dr. Hooker, *Bot. Mag.*, 3113., *Hort. Brit.*, No. 29216.

A highly valuable addition to the stock of showy-flowered easily cultivated plants with which our gardens are now enriched. What *Petùnia* nyctaginiflòra is in its white blossoms, this plant is in its blossoms of a rich rosy purple or almost crimson colour. The flowers are, perhaps, not quite so large as those of *P.* nyctaginiflòra; but they are still large, and are numerously produced. At Mr. Dennis's nursery we saw, on June 1., plants of the Nierembérgia phœnícea *D. Don*, in blossom: they had been sheltered in a glass house through the winter, and were still in one. This is the species which we have before stated (p. 107.) that some germens of it had been, in 1832, impregnated with pollen of *Petùnia* nyctaginiflòra: what the result may be is yet unpublished. The pollen of N. phœnícea itself is of a beautiful blue colour. Mr. D. Don compares the blossoms of N. phœnícea to those of a convolvulus: he deems it naturally an annual, but may be perennial, extensible into perennial duration by cuttings. "It is," says he, "readily increased both by seeds and cuttings; but young plants raised from seeds are to be preferred, the blossoms in them being in general much larger. It is a native of the countries of the Rio de la Plata." (*British Flower-Garden*, June.)

CCXXVI. *Hydrophýlleæ.*

478. NEMO'PHILA.
aurìta *Lindl.* eared-*lvd.* ○ ✱ or 1½ ? my.au P California 1831. S p.l Bot. reg. 1601

"Rather a pretty species, found in California by Mr. David Douglas. It is a hardy trailing annual; requiring a damp shady border, where it grows and flowers from May to the end of August: but, if sown in a place exposed to the sun, it soon withers up and perishes. It is of very recent introduction by the London Horticultural Society, and is at present extremely rare; but, as it seeds tolerably freely, it will soon be more abundant." Dr. Lindley describes, in continuation, some interesting facts on the internal structure of the seed-vessel; and the following one on the unripe ovules or seeds: —"If squeezed in water, they emit a cloudy matter; which, when examined microscopically, is found to consist of minute moving particles, mixed with drops of an oily fluid." (*Bot. Reg.*, July.)

MONOCOTYLEDONOUS PLANTS.

CCXXX. B*utòmeæ.*

1558. LIMNO'CHARIS. (*Limnē*, mud, *charis*, grace or ornament; its beautiful flowers adorn moist muddy places.) [3248
Humbóldt*ii* Rich. Humboldt's ≗ [△] or 1½ ap Pa.Y Buenos Ayres 1831. S m.s Bot. mag.

A species very distinct from L. Plumièr*i*; and very interesting in its internally jointed leaf-stalks and flower-stalks; rounded leaves, somewhat resembling, in miniature, those of a species of water lily; and umbels of pedunculated large pale yellow blossoms. The blossoms are very fugacious; and, at present, have been produced only in the Liverpool Botanic Garden. It is not stated that the plant is yet in any other British collection. (*Bot. Mag*, July.)

CCXXXV. *Hypoxídeæ.*

981. HYPO'XIS.
ramòsa *B. C.* branched-*stemmed* ☿ ⌊△⌋ or ½ jn.jl Y C. G. H. 1828? O s.p Bot. cab. 1936

"We received it some years since..... After flowering, the bulb remains dormant, sometimes for one or two years. It appears to be very slow of increase, not producing offsets." This species has rather large flowers. (*Bot. Cab.*, June.)

CCXXXIX. I*rídeæ.*

116. CRO'CUS.
28006. lácteus *Haw.* cream-col.-*flwd.* ✱ △ or ½ f.mr Pa.Y Mœsia 1620? O co Sw.fl.g.2.s.194. fig. sin.
2 blue-streaked ✱ △ or ½ f.mr Y.B Mœsia ... O co Sw.fl.g.2.s.194. fig. dex.

Mr. Haworth contributes the communication on these two kinds of crocus, and has given numerous synonymes of, and full information on, them. "They are very rare at present in our collections." (*British Flower-Garden*, June.)

CCXL. *Orchídeæ* § *Malaxídeæ.*

2547. DENDRO'BIUM. [Bot. cab. 1935
22706*a* ? pulchéllum *B. C.* fair ⚘ [△] or 1 f.mr W.Ro.Y India 1830. D moistened moss

"This superb species is a native of India. It flowered with us [Messrs.

Loddiges], for the first time, in February and March, 1833. The flowers are exceedingly beautiful in form and colour: they remained several days in perfection. We have found this plant to thrive best in a small pot of moss, kept moist, and suspended from a rafter in the stove. It makes many branches, with numerous little roots pushing out in all directions." (*Bot. Cab.*, June.)

CCXLI. *Scitamíneæ.*

11. CO'STUS.
píctus *D. Don* variegated-*flwd.* £ △⃞ or 1½ au Y.P Mexico 1830? D s.l Bot. reg. 1594

"Introduced by seeds communicated to A. B. Lambert, Esq., by M. Deppe, a zealous Prussian botanist, who has been engaged for several years in prosecuting researches in natural history in Mexico. The plant flowers more freely, and appears to be less tender, than the other species at present cultivated in the garden." (*D. Don* in *Bot. Reg.*, June.)

CCLXVII. *Asphodèleæ.*

8590a CALLIPRO'RA *Lindl.* (*Kalē*, pretty, *prōra*, a front, pretty face; its beauty.) *Asphodèleæ*, 6. 1.
lùtea *Lindl.* yellow-*flwd.* ♉ △ or ½ jl Y N. California 1831? O p Bot. reg. 1590

Received, by the London Horticultural Society, from Mr. Douglas, as "a new genus allied to Brodiæ'*a*." This view Dr. Lindley confirms; and farther states its approximation to, and the points of its distinctness from, the genera Leucocóryne and Triteleìa. Callipròra lùtea proves to be a hardy, very handsome, bulbous plant; growing freely in a shaded peat border, and flowering in July. It is propagated by offsets, which it produces pretty freely. No seeds have yet been ripened; but it is expected that they will be formed when the plants become stronger. The plant has the appearance of an *A'*llium. Its leaves are linear, sword-shaped, acuminate, canaliculate, of a full green colour, weak, longer than the scape, which is upright and round. The yellow flowers are umbelled, and, by the umbel depicted, consist of fifteen flowers; each segment of the perianth is externally marked up its middle with brown purple. (*Bot. Reg.*, June.)

CCXLIX. S*milàceæ.*

1118. TRI'LLIUM 9146 eréctum [3250
3 viridiflòrum *Hook. pale* green-flwd. ♣ △ or ½ ap.my Pa.G Canada 1805. D s.p Bot. mag.
péndulum *W.*, Hort. Brit. 9149.

"It is quite unnecessary to enter into a full description of this variety, which only differs from α [*Bot. Mag.* 470., *Hort. Brit.* 9146.] in the differently coloured petals; and from β [*Bot. Mag.* 1027., *Hort. Brit.* 9146. var. 2.] in the same particular, and in the broader petals." (*Bot. Mag.*, July.)

ART. IV. *A Selection of the rare and interesting Plants which flowered in the Epsom Nursery from March to July*, 1833.

DICOTYLEDONOUS PLANTS.

R*anunculàceæ* Dec. Aquilègia (*Tourn.*) canadénsis *L.* β lùtea *Nuttall.* — *D*elphínium (*Tourn.*) cheilánthum *Fisch.* β flòre plèno *Penny.* The type of this species is decidedly the finest of the perennial species: it is also rare. The variety is a splendid seminal production; which originated, I believe, near Manchester, where it is designated *D.* Barlòw*ii.* Flowers blue. In rich loamy soil it will attain the height of 4 ft. or 5 ft. — *D.* altàicum *Penny ined.* A gigantic and very handsome perennial species, with blue flowers. It attains to the height of from 8 ft. to 10 ft. — *P*æòn*ia* (L.) officinàlis *Retz.* var. *a*nemoniflòra *Hook.* Bot. Mag. t. 3168., edùlis *Sal.* var. Póttsi*i* Sabine, Bot. Reg. t. 1436.

P*apaveràceæ* Juss. *G*laúcium (*Tourn.*) trícolor *Penny.* A biennial with red flowers, and a velvet spot at the base of each petal.

Podophýlleæ Lindl. Jeffersònia (Bart.) trílobum *Nutt.* Introduced, in 1832, from North America. Its flowers, which are white, are produced in April. It thrives in heath mould, in a shady situation.

Berberídeæ *Vent.* *Leóntice* (*L.*) altàica *Pall.* Bot. Mag. 3245. This elegant plant requires heath mould and a dry situation; or it may be grown in small pots, with plenty of drainage.

Sterculiàceæ § 6. *Lasiopetàleæ.* Rulíngia (R. Br.) corylifòlia *Graham,* Bot. Mag. 3182.

Grossularièæ Dec. *Rìbes* (L.) speciòsum *Pursh.* Swt. Flow. Gard. n. s. t. 149. Requires a strong loamy soil. In heath mould, this species and *R.* sanguíneum are subject to die suddenly.

Onagràriæ Juss. Œnothèra (*L.*) densiflòra *Lindl.* Bot. Reg. t. 1593. Assimilates in habit to the genus Epilòbium. — Clárkia (Pursh.) élegans *Doug.* Bot. Reg. t. 1575.

Myrtàceæ. Bæ'ckia saxícola *Cun.* Bot. Mag. t. 3160.

Leguminòsæ Juss. Tribe 2. *Lòteæ.* Hòvea (R. Br.) Célsi Bonpl. var. undulàta *Penny.* More robust than H. Célsi. The leaves are much more waved, and the flowers of a larger size. — Stauracánthus (*Link*) aphýllus *Link,* Bot. Reg. t. 1452. — *Genísta* (*Lam.*) tinctòria *L.* β flòre plèno *Penny.* — *A*nthýllis (*L.*) marítima. — Psoràlea (*L.*) palæstìna *Gouan.* — Tribe 5. *Phaseòleæ.* *Lupìnus* (*Tourn.*) pulchéllus *Penny* in Gard. Mag. vol. vi. p. 116., and Sweet B. Fl. Gard. n. s. t. 67. Dr. Lindley has recently given a figure of this fine species, under the name of *L.* élegans *Humb. et K.* (vide Bot. Reg. t. 1581.); but, judging from the descriptions given in books, we do not concur in that identification. Its seeds should be sown in autumn, and the plants kept on an airy shelf in the green-house till April; when they may be transferred to the open border, in rich earth, where they will flower from May to October, and will attain to 5 ft. or 6 ft. in height. It may also be treated as an annual. — *Lupìnus* mutábilis *Lindl.* (non *Sweet*) in Bot. Reg. t. 1539., is identical with *L.* Cruikshánksii Hook. Bot. Mag. t. 3056.

Oxalídeæ Dec. *O'*xalis chinénsis *Haw.*

Tropæòleæ Juss. Tropæ'olum (*L.*) màjus *L.* β atrosanguíneum. This is a splendid variety, with deep crimson or blood-coloured flowers. — T. pentaphýllum *Lam.*

Portulàceæ Juss. *Portulàca* (*Tourn.*) Gilliësii Hook. B. M. t. 3064. — Calandrínia (Humb. et Bonpl.) speciòsa *Lindl.* Bot. Reg. t. 1398.

Scrophulárinæ R. Br. *M*ímulus ròseus *Bot. Reg.* t. 1590.

MONOCOTYLEDONOUS PLANTS.

*Amaryllí*deæ R. Br. Alstrœmèria (L.) Símsii Spreng. — A. hæmántha *Ruiz et Pavon.* This beautiful species is the Alstrœmèria pulchélla var. pilòsa of Lindley in Bot. Reg. t. 1410.; it is, indeed, closely allied to A. Símsii, but very distinct from A. pulchélla, A. Hoókeri, and their allies, with which it seems to be by some confounded.—A. *Pelegrìna* (L.) β álba. — A. Neíllii Gillies, Bot. Mag. t. 3105. — A. pulchélla *Sims,* Bot. Mag. We agree with Dr. Schultes in restoring the original name of this elegant species, which is unexceptionable. Its synonymes are, A. Flós Martìni Ker, and A. trícolor *Hook.* — A. bícolor *Lod.* Bot. Cab. t. 1497. — A. Hoókeri Sweet. — A. pállida *Otto.* — A. psittacìna *Lehm.* — A. aúrea *Hort.* Closely related to A. psittacìna; and, like that species, easily increased by division. The flowers are bright yellow, inclining to orange colour, with crimson lines on the upper segments: it is a beautiful species. We have added all the species we possess of this and the following genus: we cultivate them in a warm border, with a slight protection in winter. Young cuttings, an inch or two in length, strike root readily in the spring. The species of the genus Bomàrea can scarcely be increased by any other method, unless seeds are produced. — Bomàrea (*Mirbel*) hirtélla *Penny*, Sweet Fl. Gard. sub. Alstrœmèria, A. ovàta *Hook*. B. M. and Lod. Cab. — B. acutifòlia *Penny*, Sw. Fl. Gard. t. 77. sub. Alst. — B. oculàta *Penny*, Lod. Cab. 1851. sub. Alst. We follow Dr. Lindley's suggestions, in *Bot. Reg*. t. 1410., in restoring Mirbel's name for this well-marked genus. It is, indeed, surprising that the species composing it should ever have been referred to Alstrœmèria. Salisbury (*Hort. Tr.*, vol. i. p. 337.) gave the name Vandèsia to this genus, but subsequently to that of Mirbel. — *G. Penny, A.L.S.*

Art. V. *Retrospective Criticism.*

Corrections. — In Vol. VII. p. 665. line 33., for "ten miles S.W. of Philadelphia" read "three miles S.W. of Philadelphia." In Vol. VIII. p. 152. line 7. from the bottom, for "Hertford" read "Hartford." In Vol. VIII. p. 153. line 24., for "Marcetta" read "Marietta." — *J. M. Philadelphia, April* 19. 1833.

In Vol. IX. p. 369. line 7., for "it" read "they;" and in line 8., for "enumerates" read "enumerate."

A Landscape-Gardening Impostor. — We have just been informed that a person, desirous of employment, advertised in the *Leeds Mercury*, in February, 1832, for business, stating that he was "a scientific landscape-gardener, and had had the advantage of having been employed by Mr. Loudon for five years, and by four other rural architects in the south." We think it right to state that the person alluded to never was employed by us in that capacity. We have also learned that some persons, both tradesmen and amateurs, have made use of our name in various ways, to forward their own purposes; and we now give notice that the next instance of the kind we hear of, we will publish the names of the parties. — *Cond.*

Another Item on Gern, the Itinerant Vender of Floral Rarities. (p. 230.) — Mr. Greene is a gardener living near Newnham, close by Cambridge, and does a great deal of business in flower plants. In transacting some business with him last Saturday, he asked me if I had been taken in by the person who sold Mr. ——— and several others some plants which are expected to be worth nothing. Mr. Greene met him by appointment at the Black Lion, in Silver Street, where and when, after endeavouring to sell him some ranunculuses, &c., he told Mr. Greene that Mr. Loudon, two years ago, valued his collection of tulips at 18,000*l.*!! He gave Mr. Greene his address as follows: — "William Gern, Millbank Nursery, Aberdeen." *J. D. sen. Waterbeach, near Cambridge, March* 20. 1833.

Acquiring the earliest Information of Improvements in Gardening. — I was much pleased with an article in your last (Vol. VIII. p. 645.), on the subject of gardeners visiting each other's gardens in order to improve themselves, as well as to make them desirous to equal each other in the various productions of the garden; as it is impossible for any man to keep pace with the improvements of the times, if he never stirs out of his own premises. There is also another thing which your correspondent has overlooked, or has himself been so fortunate as not to feel the disadvantage of, but which, nevertheless, is a disadvantage to which many a gardener is subject; I mean, that of not receiving early information of things important to be known to them. Many things appear in your Magazine which require the gardener's immediate knowledge of, in order to profit by them, without losing a season; yet, so blind are many gentlemen to their own interest, that, after its publication, they will keep it for a month or two without showing it to their gardeners; and if you meet with some gardeners whose employers take it in, and ask them what they think of such an article, the answer is, they have not seen it. There are others who will grant the privilege of looking over it, but it must be returned as soon as possible, to be stuck on the shelves of the library, for no other purpose but to be looked at, not into. Thus, the gardener cannot give it that attention it demands, and, not having it to refer to as occasion may require, he is obliged to make short extracts of what he considers of most consequence to him in his situation, or else he must forget it. I would therefore recommend to gentlemen, as the cost is so trifling to them, that they should purchase an extra-copy, for a present to the gardener; which mark of good nature on his part would not fail to produce a good feeling in the servant towards his employer. I am, Sir, yours, &c. — *A Friend to Improvement. Dec.* 29. 1832.

On the fraudulent Practices of Gardening Authors. (p. 116.) — Sir, In p. 116. I observe some remarks upon a communication I had sent you (Vol. VIII. p. 289.), exposing the frauds of some writers on horticulture; something intended, no doubt, by its author, a Constant Reader, as a refutation of what I there have stated, and savouring not a little of that asperity which he condemns as forming a leading feature in my paper. Your Constant Reader says, that he thinks some other instance than the one I chose would have looked more " charitable and consistent in the eyes of the public." This is his opinion, and he doubtless deserves the praise of the public for his superior taste and discrimination, as well as for his charitableness and consistency; but it happens to be only his notion, and nothing more; and as every writer has an undoubted right to choose his own examples for the illustration of his subject, your Constant Reader has no right to dictate; and, of course, we may set this down as a gratuitous and very unnecessary advice. Your Constant Reader further accuses me boldly of ingratitude. I would ask him how does he come to know this? He cannot tell the particular circumstances under which I was placed, or in how far these circumstances were calculated to call forth grateful feelings from me towards Mr. Stewart. This assertion, so far as he can know, is completely his own surmise, and deserves to fall upon his own head. He says, also, that I have thrown out " vile and ungrateful aspersions" upon Mr. Stewart's character. This is a false accusation, in as far as he cannot prove, and does not even attempt to prove, that I have said any thing untrue of Mr. Stewart; and, by necessity, this assertion must also fall to the ground. Your Constant Reader holds up to public notice Mr. Stewart's private character, about which enough might be advanced, with a view to throw an air of untruth over my communication: but this is aside from the point, and with it the public have nothing to do. The grand question I would propose to your Constant Reader is the following, Is there any part of my letter referring to Mr. Stewart untrue? He does not say so, and cannot say so: nay, in some of my statements, alias " vile and ungrateful aspersions," he agrees; but, what is more, I can defy him, or any other person, to say that what I stated of Mr. Stewart is not truth. For what reason, then, is it that I am called so much into question by your would-be critic? Is truth a libel? Can you defame a man's character by stating what is true of him? Is justice to a deceived public to be sacrificed at the shrine of what your Constant Reader would term " gratitude or generosity?" What did Mr. Stewart publish his paper in the *Horticultural Transactions* for? Was it to benefit the public and posterity to the end of time? If this were his motive, why did he not contradict his statements as soon as he found them untenable? Your Constant Reader would have the world cheated by an imposition for ever, and that merely, forsooth, because the impostor has become defunct! Away with such reasoning. Does your critic really imagine that the interests of the living are to be immolated for the sake of the dead? Surely he thinks so, or else he would not speak so much about his gratitude and generosity. Your Constant Reader goes on all the while (and, indeed, it happens to be the only ground upon which he could manufacture a criticism) confidently assuming that I knew of Mr. Stewart's decease, and took advantage of this circumstance to asperse his character. He cannot, however, know this to be true; and his thus writing about what he knows not to be fact, condemns him to his face as not an honest lover of truth and justice. Your Constant Reader may assure himself that, if I had known of the demise of Mr. Stewart, I should have so modified my language, as would have prevented him, or any of his kin, from putting themselves to the expense and trouble of a criticism calculated to produce so trifling an effect; but, being entirely ignorant of this event, and some hundred miles distant from Valleyfield at the time of writing the paper in question, my only motive was that of endeavouring to prevent others from practising his schemes, knowing they would terminate in disappointment. I am consequently exempt from the foul charges of ingratitude, &c., which your Constant Reader has so generously and gratuitously heaped upon me; and these must recoil upon his own head as their originater, until he shall prove my paper untrue: then he may criticise with some reason, but not till then. Your Constant Reader further says, that for five years past Mr. Stewart has raised excellent pines. This I do not deny; this I never denied: but I deny that he ever raised pines, like those mentioned by your Constant Reader, in the manner given forth in the *Horticultural Transactions.* In conclusion, I have only to say, that I leave you and your readers to judge whether the line of conduct I have pursued, or that prescribed by your Constant Reader, would tend most to the advancement of the interests of horticulture or those of its operatives. I am, Sir, yours, &c. — *An Enemy to Deceit. Feb.* 21. 1833.

R. Jeffries and Son's Rebutment of the Insinuations of Mr. Laundy (p. 368.), *on the Correctness and Authenticity of Mr. Smith's List of the rarer of their Plants, inserted in* p. 102. — Sir, We feel ourselves called upon to reply to the criticisms of Mr. H. Laundy, inserted in p. 368., upon the list of the rarer of the plants cultivated by us, and inserted by you in p. 102. It is our opinion, opposed to that of Mr. Laundy, that such lists do deserve a place in your pages, upon the ground of "public usefulness." We should, and we have no doubt that many others would, like to see such lists introduced more frequently than they have been; for we, your subscribers, should then know where to apply when we wanted any particular plant or plants; but, as the case has been, we have, when gentlemen, their gardeners, or brother nurserymen, may have wanted some new or rare plants, sometimes been under the necessity of making application to different nurseries before our object could be attained, and this at an outlay, for the postage of letters and for other expenses, frequently equal in amount to the price of the plant sought for. Surely the removal of such an evil would be of "public usefulness." As to whether such lists are sent by the parties possessing the plants, or by a visiter, we cannot conceive that it can make any material difference, provided they are in every respect correct; but, judging from the suspicious insinuations of Mr. Laundy, it appears to us that he doubts both the correctness and the authenticity of that list. We beg leave, however, to inform him, that it contained a correct statement, and that there is not a plant named therein but such as was at that time in our possession; and although some of them were rare and difficult to be procured, and consequently our stock of them might not be very great, still, by any person of common understanding it must have been supposed that we should in a short time be able to supply our friends with them. As to the authenticity of the list in question, we most positively affirm that it was truly given; that it was wholly the production of Mr.

Smith, whose name it bears; and that it was done by him without any solicitation on our part. And further, if we had possessed the smallest desire to see our collection puffed up beyond its natural height, and for that purpose had employed a hireling, Mr. Smith would have been one of the last persons to whom we should have made an application. From knowing, as we do, something of the cool but determined independence of his disposition, we shall feel somewhat surprised if even Mr. Laundy himself do not in future pause before he ventures his suspicions concerning him. Respecting the statement of Mr. Laundy, that Mr. Smith is a man not possessing any knowledge of plants, we at once declare such statement to be the result of ignorance concerning him, or otherwise a gross libel upon his character. Judge you, Sir, whether a man active both in body and mind, who has been under the instruction of some very excellent cultivators, and has subsequently had the management of a good general collection for nearly 20 years, and, withal, possessing a love of plants, — judge you, we say, whether such a man is likely to be without any knowledge of them. The fact, Sir, is, that Mr. Smith, instead of being unacquainted with plants, has shown himself preeminently skilful in the cultivation of them; and of this fact Mr. Laundy himself cannot possibly be ignorant. — *R. Jeffries and Son, Nurserymen. Ipswich, Suffolk, June* 24. 1833.

Mr. Smith's Reply to Mr. Laundy's Remarks on the Lists of the rarer Plants grown by R. Jeffries and Son, which Mr. Smith had communicated, and which is published in p. 102. — Sir, In reference to the lists of plants grown in provincial nurseries, and especially to that supplied by me of the rarer plants of Messrs. Jeffries and Son, inserted in p. 102., H. Laundy "thinks" (p. 368.) that these lists do not deserve a place in your valuable pages, on the ground of public usefulness, unless they contain plants that are rare and difficult to be procured." I, however, am of a contrary opinion; for "I think" that there are a great many plants which are neither "rare nor difficult to be procured," which are not so generally grown as their excellence would seem to justify; and I also "think" that H. Laundy cannot deny that this is the fact. In case, however, he should make an attempt to do so, I would provisionally ask, whether, from the numerous plants which might be named, Magnòl*ia* conspícua, Chimonánthus fràgrans, Wistàr*ia* Consequà*na*, Thunbérg*ia* alàta, and Quisquàlis índica, are not species which justify my opinion? or whether they are cultivated to one tenth of the extent to which they deserve to be? and also whether such deficiencies do not arise more from want of information as to whence they may be obtained, than from the circumstance of their being either "rare" or "difficult to be procured"? H. Laundy proceeds, and adds, "and unless all those enumerated are not only possessed *by the party contributing the list*," (this is, indeed, prettily stated; for it implies that honour and accuracy in one man are not equal to honour and accuracy in another: the following, however, is superlative,) but possessed by them in sufficient quantity for sale." Query, Who is there but knows that when a nurseryman procures a rare plant, it is in the intention therefrom to supply every applicant, although in some cases he may not be able to do this in the first instance. H. Laundy farther states that "such lists, too, would appear with a better face if they came directly and professedly from the interested party, as their doing so would cast the responsibility for their accuracy on this party." — He adds, "I may venture my suspicion that Mr. Smith's name is insufficient to veil the real actor; Mr. Smith being a man not professing any acquaintance with plants, although a very creditable kitchen-gardener." With respect to the first part of this sentence, be it known and remembered that my name was not given for the above purpose, but for that of supplying the readers of the list in question with its authenticity; and I not only recognise it, in *every particular, as my own production*, but I also consider myself to be its *rightful respondent.* And I wish farther to state, that I *never was* a party in such a matter as the above, and in the manner hinted at by H. Laundy, with any man, nor will I ever be, whether such man be prince or whether he be peasant As for that part of the sentence which says, "Mr. Smith being a man not professing any knowledge of plants," I declare that it is void of the least particle of truth. If he had declared me to be a man not professing to possess a good systematical knowledge of botany, he would have stated the truth; but his statement that I do not profess any knowledge of plants I positively deny. Believing that these lists (when considerately introduced) lead to enquiry concerning the plants which are enumerated in them, and that such enquiry produces the desire of having the plants in possession, I hope that, by whomsoever they may be composed or authenticated, they may be frequently inserted in "your valuable pages," that, being thereby extensively circulated, they may become subjects possessing great "public usefulness." I am, Sir, "your constant" and one of your earliest subscribers, — *John Smith. Whitton Road, Ipswich, June* 18. 1833.

The Seeds of Pinus *sent* (Vol. VI. p. 212.) *by M. Hartweg as Seeds of the* Pìnus *resinòsa* Aiton *were not Seeds of this Species, but Seeds of the* Pìnus *caramánica of Bosc.* — Sir, On the subject of pine trees, I shall point out to you what I think an error in the opinion of M. Hartweg of Carlsruhe, as expressed in an extract from a letter from him, which has been inserted in Vol. VI. p. 212. He informs you that the *P*ìnus resinòsa of Aiton, or *P*ìnus rùbra of Michaux, exists in a certain quantity in the Hartwald in Leimerslächle; and he mentions some dried seed of it, which you have received and distributed. Greatly interested in this article, I wrote to M. Hartweg to ask him to send me a branch with cones of this species, which he had the kindness to do: but this specimen, instead of belonging to *P*ìnus resinòsa, evidently appeared to me a European and Asiatic pine, still but little known (approaching very near to *Laricio de Corse*, *P.* Larício or altíssima), and which Bosc has named *P*ìnus caramánica. This pine is not generally admitted by botanists as a species; the greater number make it only a variety of *P.* Larício, in which, I think, they are botanically correct: but this variety is, however, quite distinct by its vegetation, and probably by its qualities. Henceforward, it ought to be distinguished from the species by foresters. On the whole, M. Hartweg has probably made you a more valuable present than if he had sent you the true *P.* resinòsa; but his notice, as to historical information, is erroneous; and, in order that the trees produced from this seed may not be established in England under a false name, it will be advisable for you to warn your friends, to whom you have distributed the seeds, that the plants produced from them are not the true *P.* resinòsa, but *P.* caramánica.

I shall take this opportunity of speaking to you again of our *P.* Larício, the giant, and probably the finest, of the pines of Europe; the multiplication of which you ought to insist on in England, where it is still, I believe, very rare. It is quite hardy, succeeds as well by sowing on the spot as the Scotch pine (*P.* sylvéstris), and may be regarded as one of the most precious forest species. We multiply it very much now in France; and I have myself sown, on my property of Barres, more than 12 arpens (about 15 acres English). I am, Sir, yours, &c. — *M. Vilmorin. Paris, May* 21. 1833.

What Plant is fitter for Hedges than the Hawthorn? asks Mr. Cheeks. (Vol. VIII. p. 738.) I think with J. D. (p. 738.) that it would be not easy to find one better adapted for the purpose. By the by, I heard, some time back, in London, of

A Species of Hawthorn from South America, similar to the British Kind, only an Evergreen.—If I can lay hold of it, I will certainly give it a trial; and, meantime, should be glad of information thereon from any one who may have fallen in with it. — *Samuel Taylor. Stoke Ferry, Norfolk, Jan.* 21. 1833.

The Sufficiency of the Hawthorn for the Production of live Fences; and a Notice of some Experiments made to ascertain if the Germination of its Seeds can be artificially expedited. — Sir, Mr. Cheeks complains (Vol. VIII. p. 738.) of the hawthorn as a plant ill adapted for the formation of hedges, and enquires whether some other plants better suited to the purpose might not be substituted in its room. The hawthorn, like most other plants, may probably not grow, or at least not thrive, in certain soils and situations, and under peculiar circumstances; but, in a general way, it may be considered exceedingly well adapted to the purpose; and I greatly doubt whether any other plant more universally suitable can be found. It surely forms, when properly treated, a most excellent live fence *, by no means " defective [as your correspondent complains] in its resistance of cattle;" nor is it, under favourable circumstances, a plant of slow growth. Some seedlings, which came up spontaneously in a newly made flower-border in my garden in the spring of 1832, grew, in the course of the same season, to the height of 7 in., 8 in., and 9 in., or more; and are now (April, 1833) quite strong enough to plant out as quicksets for fencing: although, in the case of this being done, it would be better to transplant them in January than so late in the season as the present time. One seedling, indeed, in the same border, attained the height of 1 ft. 11 in.; but this I consider an extraordinary instance; and I could scarcely have believed the plant to be only of one year's growth, were I not certain that it cannot be older, from the circumstance of the border itself having been formed only in November, 1831; when the soil was entirely taken out to a considerable depth, and replaced by a fresh compost of decayed leaves, &c. It is sometimes facetiously or sarcastically said, that it is time enough to think of sowing your haws when the enclosure bill has passed the two houses of parliament. This remark must not be taken too literally, being intended, no doubt, merely as a gentle satire on surveyors and commissioners of enclosure, on account of their occasional dilatoriness in putting in force the provisions of an act of parliament, and the delays which occur in apportioning the common lands among the respective proprietors. The great drawback against raising hawthorn for fencing is, not so much the slowness of the growth of the plant, as the length of time which the seeds lie in the ground before they vegetate. The haws are to be gathered in the autumn, or early part of winter; and then, as J. D. has observed (Vol. VIII. p. 738.), " are buried together in a pit or burrow, where they lie till the beginning of February in the second spring following." They are then taken out to be sown, and some of them (not all) will come up in the spring (say March or April); but full half or more of the haws sown in February will lie in the ground even another year, not vegetating till the March or April twelvemonth; and a few are sometimes known to remain another year still. So that, if a quantity of quick is required to be raised by a given time, it must be thought of and provided for some four or five or more years beforehand: and this is no slight tax on human forecast. Occasionally, too, it may so happen that there is an almost entire failure in the crop of haws, just when they are wanted: a circumstance which, of course, will protract the business, and cause another year's delay. In short, so tedious is the process of getting the young quick fairly above ground, that, if any method could be devised which would accelerate the vegetation of the haws, and cause them to come up the first spring after they are ripened, it would, indeed, be a valuable and important discovery.* With this view, I made several experiments a few years ago; and, though they were all unsuccessful, it may not be entirely useless here to detail the particulars, as such recorded instances of failure may, at least, prevent a repetition of the same fruitless experiments; and may, perhaps, lead to the institution of others which may prove more successful. I had heard (like J. D.), and often, that haws which had passed through turkeys or other birds would germinate more quickly, in consequence of having been submitted to the heat and action of the bird's stomach. I was told, too (though this appeared improbable), that it was the pulp or flesh of the haws that retarded their vegetation. Accordingly, late in the autumn of 1830, I had a quantity of haws gathered, which I treated in the following ways: —

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* " *Méspilus Oxyacántha*, frutex ad sepes vivas præstantissimus." *Smith*, in *Flora Britannica*, p. 530. — *J. D.*

Experiment 1. (Nov. 13. 1830.) I almost entirely deprived the haws of their pulp, by squeezing them and rubbing them together by hand, with a little sand. Scalding water was then poured over them, and they were left to soak. The scalding was repeated on Nov. 15., and half of them sown the same day; the remainder set by in a jar.

Exp. 2. (Nov. 15.) The haws were simply scalded, without having been bruised or deprived of their pulp; and scalded again the next day. Part were sown on Nov. 17., and the rest set by.

Exp. 3. (Nov. 16.) The haws were treated in the same way as in Experiment 1., except that they were soaked in warm (not scalding) water. Part sown on Nov. 17., and the rest set by.

Of each of the reserved portions of the haws thus treated, a small quantity was sown respectively in three large pots, about the 12th of Feb., and the pots plunged in the hot-bed. The remainder sown in separate beds, in the open ground, on Feb. 22.

None of the haws, however (as already hinted), vegetated till the spring of 1832, when they all produced fair crops. No material difference was observable between such as had been sown in autumn, in spring, or in pots in the hot-bed; but, in each case, those produced decidedly the thickest crop which had been treated in the manner of Experiment 3., i. e. such as had been deprived of their pulp, and soaked in warm (not scalding) water. And I may add, that, in the spring-sown bed of these last haws, many did not germinate till the present spring (1833), and are only now making their appearance above ground.

From the above experiments, I am led to conclude (as, indeed, would, *à priori*, seem probable), that what retards the vegetation of the seed is not the pulp of the haw, but the hardness and durability of the shell. And could any chemical process or mechanical operation be devised by which the shell might be dissolved or broken, without injury to the kernel within, I conceive that, in this case, the haws would germinate the first year. I have to apologise for troubling you with such a dry detail of unsuccessful experiments; but the subject is worthy of attention: and the present discussion may, perhaps, serve to stimulate further enquiry. I am, Sir, yours, &c.— *W. T. Bree. Allesley Rectory, April* 22. 1833.

Mr. Seymour in reply to Mr. Heyward's Strictures (Vol. VIII. p. 654.) *on Mr. Seymour's Mode of Training.* — Sir, I feel sorry to have to encroach again upon the pages of your valuable publication with the present paper, in vindication of our method of training the peach and nectarine trees; but the manner in which Mr. Hayward has treated it calls for a reply, which I shall endeavour to give as concisely as possible. In Vol. VIII. p. 654. fig. 124., Mr. Hayward has given a drawing, considerably more like F. N. B.'s pear trees (Vol. II. p. 262.) than my father's peach trees in the same volume (p. 296.). Mr. Hayward charges us with losing an angle of 45° at the bottom of the wall; but I am at a loss to know where he finds his grounds for such observations, for our tree has its lower branches nearly horizontal. We certainly, while a tree is young, give it a considerable elevation, to promote an equal distribution of sap; but, as soon as we find the tree sufficiently strong in its lower branches, these are thrown down to a line horizontal with the base. Mr. Hayward has endeavoured to make our method conformable to his 7th rule, by placing the leading branches at an angle of 45°; to which rule we have no pretensions, for our leading branches pass through all the degrees of the quadrant, from the horizontal to the perpendicular. But I beg to inform Mr. Hayward, that the plan which we adopt to produce an equal distribution of sap is, to to increase the number of our secondary leaders as the main leaders advance in elevation and increase in strength. By these means, we considerably shorten the stem of our trees, and keep that command over them which enables us to reform them should we lose a branch by any accident; for, in that case, we have only to loosen the tree, above the failure, and bring the branches down. There is generally sufficient wood in the centre to supply the deficiency; but, if not, we have only to lay the leading branches a little more distant from each other. Mr. Hayward supposes that we may have gained some information from his works on horticulture; but I can assure him, that neither my father nor I have ever seen any of his writings but what have appeared in the *Encyclopædia of Gardening* and in this Magazine. I am, Sir, yours, &c.—*William Seymour. Palace Gardens, Bishopthorpe, July* 4. 1833.

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* Would not this form a fit subject for a prize to be offered by our horticultural and agricultural societies?

Facts on the Æcídium cancellàtum Sowerby; *its Germination supposed to occur on Leaves while these are enfolded in the Buds of Trees*; *and a Suggestion for extirpating the Æcídium.*— Sir, Much has been written in your Magazine respecting mildew and blight; and in Vol. VIII. p. 738, 739., are queries on that destructive parasitic fungus Æcídium cancellàtum. I think any one that is in possession of any facts relative to it, be they ever so few, cannot be justified in withholding them from his fellow-men. Impressed with this feeling, I send you a few observations which I have made on it. The Æcídium cancellàtum first makes its appearance, discernibly to the naked eye, as soon as the leaves have expanded themselves, in the form of little red spots on the upper surface of the leaf, as Mr. Merrick has described in Vol. IX. p. 333. Question, Has not the fungus been growing ever since the leaves began to protrude from the scales that enclose them in the unexpanded state? or how could the fungus attain the size to be visible at a distance from the trees on which it is growing, by the time the leaves have become expanded? This appears to me very likely to be the case, as the fungus is nearly three months from this time before it arrives at maturity; consequently, it is not one of those species of fungus which require only twenty-four hours from the first springing of the plant to the ripening of its seed. From red it changes to a bright orange; and, when examined with a microscope, is found to contain a number of dark spots, rising a little from the surface of the leaf, and covered with a honey-like substance. I have also observed drops on the leaves, that seemed to proceed from the orangy blotches; and these, when the tongue is applied to them, have a sweet flavour. This I have observed to take place on the upper surface of the leaf, before the pale brown, teat-like, miniature bags (peridia) are projected from the woody excrescences on the under side.

With respect to the question by J. D. (Vol. IX. p. 332.), by virtue of my observations, so far as they have yet been extended, I answer affirmatively, that "all the individual plants of any one species of any genus, to which species a certain species of fungus is peculiar, are soil equally eligible, whatever be their condition of health, for the seeds of that fungus to germinate in or upon, and for the plants arising from these seeds to thrive in or upon, and be nourished by;" for I have known the parasitic fungi to thrive on plants in the full vigour of health equally well with those on trees in a decayed state. The observations which I have made on the Æcídium cancellàtum have led me to differ in opinion from the idea which is advanced in Vol. IX. p. 331.: as I have only found it on leaves that expand from the buds which were formed in the previous year; and that, when the spring shoot is taken within three or four buds of its base, the leaves of the second, or midsummer, shoot (as it is termed by gardeners; that is, the shoot produced from the buds of the spring shoot) are entirely free from fungi. If the seeds of fungi be sucked up by the spongioles, why are not the leaves of the second shoot infected with it? These are facts which lead me to believe that, when the Æcídium has grown to maturity, and sheds its seeds, they drop between the scales of the buds which enclose the leaves in embryo; and is it not probable that their minuteness enables them to enter the pores of the leaves, and germinate in them, before these are protruded from the bud and expanded? I would, therefore, suggest to those who are troubled with this formidable parasite, to wash their trees with caustic lime-water, adding a little salt, as soon as the leaves are fallen in the autumn, and when the trees are dry; and to repeat the washing two or three times. If the lime be left to settle, the lime-water will not discolour a wall. I am, Sir, yours, &c. — *John Jennings. Shipstone on Stour, Worcestershire, June* 28. 1833.

The explanations in p. 329. of the cut in the same page, which exhibits the progressive stages of growth and the structure of the Æcídium cancellàtum, are lessened in clearness by the alphabetic sequence of the letters of reference to which the explanations are affixed: the course of the Æcídium's growth will be learned by reading the explanations in this order: — *a, c, b, d, f f, e e.* — *J. D.*

ART. VI. *Queries and Answers.*

THE Effects of Terrestrial Radiation on the Processes of Vegetation. (p. 287.) — Sir, Every one engaged in the cultivation of plants, whether in the garden or in the fields, must feel interested in the remarks presented by your correspondent, J. Murray, Esq., on "the effects of terrestrial radiation on the processes of vegetation." Much of the success of both the gardener and farmer depends on meteoric agency and atmospheric influences; and, though both these cultivators may know by experience which are the best sites or aspects for their gardens or fields, yet it is perfectly true they cannot always explain the cause of their preference; or give real reasons why one situation is better than another, or why the level bottom of a valley is less suitable for a garden or field than the sloping side of a hill. If the man in search of scientific information turns to the article Meteorology in any encyclopædia, he will find that the lower temperature of a valley is ascribed, by one, to an excess of radiation; by another, to the greater evaporation; and, by a third, to an accumulation of the coldest air, which has descended down the sloped brows of the high ground, and settles on the lowest places. I shall not venture to give an opinion respecting these different notions; but, seeking information, shall, with your leave, describe a certain locality, with the meteorological circumstances experienced upon it; and ask the opinion of Mr. Murray, or of any other correspondent, to account for the phenomena which I shall proceed to detail.

In the parish of Great Missenden, in the county of Buckingham, and on the south-eastern slope of the Chiltern range of chalk hills which intersects the county, rises the Missburne stream: it runs in a southerly direction along a winding valley of about fifteen miles in length, and falls into the river Colne at Denham. In its course, it works the mills at Amersham, Chalfont St. Giles, Chalfont St. Peter, Oakend, and Denham. It is liable to fail in summer; and, what is remarkable, the mills nearest its source, and those nearest its junction with the Colne, are often in full work when the intermediate mills are standing still. This is owing to the greater portion of the water sinking beneath the base of the chalk formation about a mile below the town of Amersham, and rising again, by numerous springs, in the valley, about a mile below the village of Chalfont St. Peter. At the spot where the springs burst forth, the valley is contracted, the level bottom being only about a quarter of a mile wide. The brows on each side rise somewhat abruptly: that on the west side, to the height of 103 ft., while the opposite side is about 10 ft. lower. At all seasons, a copious exhalation, or rather evaporation, fills the valley to the height of between 50 ft. and 60 ft. above the level of the stream at this place: often quite visible in frosty weather; and sensibly felt during summer, by reason of the difference of temperature in passing down to, or rising from, the bottom of the valley; the heat within the body of vapour being always from 7° to 10° lower than the superincumbent clear air above. The heat of the soil in the bottom of the valley, at 1 ft. beneath the surface, is never lower than about 40° of Fahrenheit; and increases higher and higher the deeper an excavation is made. The water in the stream is never frozen, even when the thermometer stands at zero in the open air. The temperature of the soil, on the top of the banks at the same depth, varies according to that of the air, but is generally a few degrees higher in winter; and, like that in the valley, many degrees colder in summer. During the heat of the latter season, vegetation is most luxuriant, and dews are most copious in the valley; but the plants are tender, both the flowers of fruit trees, and the foliage of common shrubs, being frequently destroyed by spring frosts. On the higher ground on each side, the contrary of all this is seen: plants grow slowly, but they are hardy; dews are less frequent, and comparatively light; and, while potatoes, French beans, shoots of asparagus, &c., are destroyed in the valley, no such effects are experienced on the hill.

I have been rather particular in detailing the circumstances of the place, and the effects of weather on vegetation, in order that Mr. Murray may be enabled to explain to us the causes of the effects above stated, and to what we should ascribe the lower temperature of the valley: whether to evaporation, radiation, or to chilled air which has slid down from the high grounds above.

I would only beg to observe, that radiation from subterranean heat should not be forgotten in this enquiry, as it is probably owing to this that the dews and evaporation of the valley of the Missburne are so abundant. I am, Sir, yours, &c. — *Querist. July*, 1833.

Technical Terms in Horticultural Chemistry, and a Test for detecting the Oxide of Iron in Soils. (Vol. VIII. p. 735.) — Sir, Your worthy correspondent, Mr. Taylor (Vol. VIII. p. 735.), wishes "some of your learned correspondents would insert in your Magazine a list of the chemical terms relating to horticulture, which are not found in an English dictionary, and with their proper accentuation." Such a contribution, he thinks, would be useful to such as are not acquainted with the learned languages. No one can deny, and it gives me pleasure to see, that you do every thing in your power to impress it upon the minds of your readers, that a knowledge of science is becoming every day more indispensable to the gardener who aims at any thing above that of being an empirical practitioner; and particularly a knowledge of chemical philosophy; as, without an acquaintance with the principles of this science, it is impossible for him to reach any thing like perfection in those branches of natural history which he is obliged to study; and without its assistance all his endeavours at improvement and discovery are founded upon the weakest of all foundations. It is chemistry which gives us the rationale of every operation of the gardener; and to this source does the enlightened mind look for improved methods of practice to arise. Although the principles of this science are of such vast importance to gardeners, and, in a particular manner, to the young of the profession; yet it is a fact, notwithstanding all that has been said about it in your Magazine, that many are not aware of this, while as many scout the idea altogether; and others who would study it have not the opportunity to do so. The absence of institutions for the gardeners, similar to those now in every town of any note for mechanics, and the impossibility of young gardeners (from distance, and other circumstances, which I have endeavoured to show you in a former letter, p. 173.) attending these, will soon place gardeners, as a body, far behind the mechanics in intelligence. This idea, to those who have the advancement of horticulture at heart, is far from being a pleasant one; and to the young gardener, whose opportunities for improvement are by far too scanty in general, it may act as a drawback to his advancement in knowledge: but this ought not to be the case; for he should know that, now-a-days, when the competition is so great, he may as well, and, indeed, much better, give up the business entirely, than attempt to proceed without that indispensable requisite, a good education. But to return to your correspondent. He desires a knowledge of the chemical terms used in horticulture; but he, perhaps, is not aware that it is impossible to possess any adequate idea of the meaning of these terms, so as to render them useful, without detailing suitable explanatory experiments; and, even then, without seeing the experiments actually performed, together with a possession of a general knowledge of the science of chemistry, they would be of very little utility, and would occupy a portion of your Magazine which might be filled with more valuable matter. And this request is rendered the more unnecessary, when we consider the number of minor publications in this science issued at the present day; some of them well calculated for the purpose for which they were written, although your learned correspondent, Mr. Mallet (Vol. IX. p. 122.), appears to think the contrary. There are two publications which I would particularly recommend to young gardeners, as upon their acquirements depends the future advancement of our profession. The first, which is the cheapest, is Griffin's *Chemical Recreations*, containing the first lines of the science, and a detail of a number of very cheap and instructive experiments: the second is Fife's *Manual of Chemistry;* a work admirably suited to the wants of the young gardener. Both of these works have been compiled for the sake of mechanics; and, of course, the technicalities of the science are sufficiently illustrated.

Every one who intends studying chemistry should be aware of the necessity of experimenting for himself. By reading, he can, at the most, only be a smatterer; and one experiment, carefully conducted, and the *rationale* of the action reasoned upon, will teach him more of this science than the perusal of many volumes. The question here may very naturally occur, How can the young gardener, who has to combat so many difficulties, procure apparatus and materials to experiment with? This, I confess, is a powerful obstacle to be overcome, and, in many cases, will prove insurmountable; yet, notwithstanding, a person with a little invention and perseverance may prove many of the general principles with very trifling apparatus, and at little expense. For instance, the law of chemical attraction, and the chemical and mechanical properties of the gases, &c., may be proved at a very small cost. Oxygen may be procured sufficiently pure, by placing a bell-glass in water, and introducing some leaves; then exposing them to sunshine, and removing them as soon as faded, or before night. This procured, its properties can be examined. Sulphur, phosphorus, &c., may be burned in it, and acids formed, &c. Hydrogen gas may be procured by putting diluted sulphuric acid upon zinc or iron filings into a Florence flask, furnished with a bent tin tube. During the action caused by the disengagement of the gas, an example of single elective affinity may be observed. Its great lightness, and, by mixing it with about a third of atmospheric air, its explosive properties, may be ascertained, &c. The residue may be filtered, evaporated, and crystallised; and may be used with nut galls in making ink, and in numerous other experiments. Carbonic acid gas may be easily obtained from lime, chalk, shells of fish, &c., by the addition of any of the more potent acids: its properties may be also examined. In fact, where there is a willing mind, combined with perseverance, more may be done than we might anticipate.

Mr. Taylor farther asks, "What is the simplest test for detecting the oxide of iron in soils and subsoils?" In answer, I would state, that, for any of the salts of iron, an infusion of nut galls, of tea, or of any other vegetable containing a quantity of astringent matter, will detect it. These form a black precipitate with all the salts of iron; but, if the iron or astringent matter is in minute quantities, a black colour will only be given to the solution. This black precipitate is a compound of the astringent principle of the vegetable and the oxide of iron. Prussiate of potass forms a beautiful blue precipitate with some of the salts of iron. I would here caution your querist from making any inferences from empirical analyses; as bodies composed of the same elemental parts, but joining in different definite proportions, form very different substances, and, of course, possess very distinct properties. As analysis is the most intricate part of practical chemistry, and requires a degree of discrimination and nice manipulation, combined with a thorough knowledge of the science, which cannot be expected from a working gardener, it would, perhaps, be better, before any deductions are made, to have the soil analysed by a neighbouring chemist, as you have, I think, somewhere recommended. I am, Sir, yours, &c. — *Ephebicus Horticultor. Peeblesshire, Feb.* 21. 1833.

Whitehill, the seat of Isaac Cookson, Esq., near Durham, we are informed, is one of the neatest kept places in England, and one where the journeymen are remarkably well treated. Will the gardener there, or any of our readers, give us a description of the place, and of the mode of garden management? — *Cond.*

Wild Plants declare the Quality of the Soils in which they flourish. — A knowledge of the habitat of plants is of so much importance, that I am surprised the hint given under the head "Soil," in Dr. Willich's *Domestic Encyclopædia,* has not been adopted. He says, "if an accurate *geographical catalogue* of such vegetables as grow in particular situations were published in every country, it would be of great service in ascertaining the degree of fertility, as well as the nature, of the different soils. — *C. M. W. March* 12. 1833.

Plane Trees. (p. 379.) — In relation, I must not say in answer, to Mr. Rutger's question in p. 379. on plane trees, I may state that trees of the western plane (*Plátanus* occidentàlis *L.*) are not rare close around London, and some grow actually in it, as in Piccadilly, in some of the squares, &c.: those I have seen both around and in London seem thriving and well-conditioned. I once had to plant, and did plant, some fine young western plane trees into a heavy, even partially clayey, loam, in a low meadow through which watercourses ran, and still run; and where the soil, from the watercourses, and the low situation of the meadow, was and is always moist, except for three months or so in summer. In this soil there are in places numerous pebbles, which have probably been at some time conveyed to their present places, as a means of filling up hollows which local circumstances declare once existed there: bullocks' horns, too, have been found in some small number. Well, in this situation ("No man's Meadow," at the foot of the old botanic garden, at Bury St. Edmunds), the fine young plane trees, planted in about 1825, grew flourishingly up to 1830, since which time, from a change of residence, I have not had an opportunity to observe them. — *J. D.*

Cure of Canker in young Fruit Trees. (Vol. VIII. p. 696.) — Sir, Allow me to thank Mr. Charles Lawrence of Cirencester, for his communication (Vol. VIII. p. 696.) on the canker in young fruit trees; the benefits of which I hope to avail myself of, in a recently planted orchard of dwarf trees, which, I am sorry to say, already show symptoms of this hateful disease. My only objection to the system of heading down and new-grafting, recommended by your correspondent, is the retrograde movement one seems thus to make: but perhaps this is more ideal than rational: for, if the trees must ultimately suffer from the disease, it is better to get rid of the old branches at once, and take the chance of what new ones may do. Of one thing, though, I should wish to be assured before entering too largely into this system of decapitation; viz., that the new wood is *bearing* wood; for, though vigorous and healthy, it may not produce much fruit. At all events, the suggestion deserves attention; and I, for one, feel thankful for it. — *Samuel Taylor. Stoke Ferry, Norfolk, Jan.* 21. 1833.

Is the Gravenstein Apple a Dessert or a Kitchen Apple? — In Lindley's *Guide to the Orchard and Kitchen Garden*, p. 71., it is described as a dessert apple, that will keep till April and May, and that may be reckoned a rival to our Ribston pippin. In the *London Horticultural Society's Catalogue*, 2d edition, p. 15. it is described as as a kitchen apple, in use from October to December. Which of these two statements is the true one? — *M. Saul. Lancaster, June* 17. 1833.

The Gravenstein Apple may be used either as a dessert or kitchen apple. Its chief merit, however, consists in being an excellent rich sauce apple; some, indeed, prefer it as a dessert fruit, but it is not generally esteemed as such. The season, in this country, is found to be from October till December. In the *Horticultural Transactions*, vol. iv. p. 216., where the first account of it in English is to be met with, it is stated to keep till April. In Sickler's *Teutsche Obstgärtner*, vol. xxi. p. 119., it is said, when well kept, to remain good till April or May. Such may have been the case in some parts of the Continent where they have a dry air, and a steady cold, throughout the winter; but, in the varying climate of this country, it will not keep beyond Christmas, without extraordinary attention. In Diel's *Pom.* vol. viii. p. 8., it is said to be a good apple for eating raw, as well as for kitchen use. Ripe the end of October, and by Christmas its flavour fades. In the *Hort. Trans.* vol. iv. p. 523., where there is an excellent figure of it, it is stated that "it does not keep well beyond the end of November." — *Robert Thompson. Chiswick Garden, July* 11. 1833.

Knevett's Seedling Pine Strawberry. — A small basket of this fruit was exhibited at the Horticultural Society's June exhibition: and so much were they approved of, that both Mr. Munro and ourselves have had letters of enquiry on the subject. In order to give a satisfactory answer, through this Magazine, Mr. Munro called on Mr. Knevett, and the following is the result: —

"I called at Mr. Knevett's garden myself, in order that I might see this strawberry growing, as I have no great faith in samples of fruit gathered, and made the best of, for show; but, to my great surprise, I found that the sample shown at our meeting was nothing to what it might have been. The quantity of fruit on each plant was far beyond any thing that I have ever seen before, and I have no hesitation in saying that it is the finest strawberry now in cultivation. — *D. M. Hort. Soc. Garden, July* 15. 1833.

Fingers and Toes on Turnips. (Vol. VIII. p. 498.) — J. M. says, the insect causing these malformations is called, by entomologists, Nédyus contráctor. Now, Professor Rennie writes, in *Insect Architecture* (p. 389.), that it is probable these may be the larvæ of a weevil (Curcùlio contráctus, and Rhynchæ`nus assímilis, &c.); then, in *Insect Transformations* (p. 218.); Nédyus contráctor (a root weevil). May I ask J. M., or any other correspondent, if these are all names for one poor insect, heaped upon it by the learned, to deter us from prying too far into the secrets of nature? If not, which is the right name, or true insect? Perhaps some one may favour us with a cut, as it does not yet appear to be generally known; and a little more of its history than the professor gives will be very acceptable to me and to many more.

To free the soil of the insect causing fingers and toes, will J. M. say how the soapsuds are applied (Vol. VIII. p. 498.); the quantity, and expense, and what other alkaline substance is likely to answer the same purpose? — *J. C. Farmer.*

Curcùlio contráctus *Marsham* and Nédyus contráctus *Stephens* are two names for the same insect: Rhynchæ`nus assímilis *Fab.*, as mentioned by Kirby and Spence (*Introd.*, vol. i. p. 453.), is doubtless distinct, but still closely allied, as it is most probably the Nédyus assímilis of Stephens, and the Curcùlio assímilis of Marsham. Mr. Haworth, from whom, in part, these synonymes have been learned, thus remarks on this subject: — "But it is presumed, that not any Curculiónidæ [weevil tribe], nor even any coleopterous insect, causes the vegetable disease called 'fingers and toes.' This is one of *contraction*: it is more probably the work of Tenthredínidæ [the sawfly tribe]. I have somewhere observed, in print, that lacerations on the green or growing parts of vegetables usually *enlarge* themselves, as is well observed on pin-scratched gourds, &c. The diseases of contraction, or those diverting the sap, &c., seem to be effected by haustellated [furnished with a sucker] insects. Marl is the great cure for 'fingers and toes,' and Norfolk marl is said to be the best." — *J. D.*

The Grub (or Caterpillar, as an Entomologist would say) of the Phalæ`na *prónuba, prefers to feed on cruciferous Plants, and sometimes ravages young Plants of the Turnip.* — The grub of this moth is that yellowish brown tough-skinned grub which every gardener has seen repeatedly on, and just under, the very surface of the soil, where it eats through the collar or stem of the young cabbage plants, &c.; and, from numerous observations, I have concluded that it prefers the cruciferous plants of any or every genus to the plants of other natural orders, as the Crucíferæ have all, in a greater or less degree, a sinapine or mustard flavour. Seven or eight years ago, it destroyed on the farm of Charles Harrison, Esq., at Bury St. Edmunds, numerous young plants of turnips, when possessed of seven or eight leaves, by eating through their incipient rootstalks or bulbs; hereupon the plants would fall aside and die. When this happened I knew not the name of this grub, or rather of the moth in the grub or caterpillar state. This I learned from a lady versed in entomology, Mrs. M. A. Robinson, 64. Red Lion Street, Holborn, who was then visiting Bury St. Edmunds, and who took thence some of these grubs, larvæ, or caterpillars, and fed and kept them until they changed into the winged or perfect state. — *J. D.*

The Turnip Flea. — Has the history of this insect ever yet been fully given in any book accessible to one who has not cash to spare for purchasing it, if expensive? An extract, in that case, would be of some value. — *J. C. Farmer.*

Captain Brown, in his notes to his edition of White's *History of Selborne* represents, p. 114., that Marshall has given some information on the insect in the *Philosophical Transactions;* and, we believe, some may also be found in one of the volumes of Gill's *Technological Repository.*

The Fly in Turnips. — A farmer, who lives at Green Hammerton (Yorkshire), states that nearly all the Swedish turnips in his neighbourhood were destroyed by the fly, with the exception of those of a few of the farmers at Green Hammerton: and that, in consequence of their having adopted the following method, their crops had suffered very little, although they were at first as much infested as their neighbours'. A board, about 18 in. in breadth, and sufficiently long to cover four ridges of turnips, was made to run upon wheels, high enough to allow the board to pass over the turnips without touching the tops of them; the lower side of the board was painted with white paint, which the men provided themselves with and took into the field; and, during the night (at which time the fly is more vigorous and destructive than during the day), the instrument was wheeled from one end of the field to the other. The insects, on being disturbed, of course immediately fly or jump up, and stick to the paint; and, at the end of every set of ridges, the board was always covered with them. (*Bury and Norwich Post,* August 15. 1832.)

On the Turnip Fly, Flea, or Beetle (*Háltica némorum*). — Mr. Main, in his *Illustrations of Vegetable Physiology* just published, in a chapter on "Destructive Insects," has, p. 297., remarked: — "The most successful management for preserving a crop of field turnips is by sowing drills of the kind intended to stand, rather thinly, alternating with drills of another sort sowed thickly; the latter will be preferred by the flies, and devoured while the first grow out of their way: the supernumerary drills, if any of the plants escape, are afterwards hoed up. . . . . We had been acquainted with this beetle, and had suffered much from its ravages many years, without ever being able to witness its flight; but one day (July 20. 1832), in passing along the Fulham Road, and opposite a piece of turnips saved for seeds in the nursery of Messrs. Harrison and Bristow, we found several of the insects on our dress, and saw thousands sporting in the sunbeams over the crop. This circumstance shows the fallacy of those arguments in which it is stated that sowing ten days after the turnip land is ploughed, or fallowing two years successively, will destroy or banish the insect from the crop."

The Oat Grub. — The larvæ of the Típula are stated, in *Insect Transformations,* occasionally to destroy the grass in meadows, in particular places, to some extent. I wish to mention (as requiring a little explanation), that this never happens in the north of England. The oat crop is the only one that suffers much, as wheat is scarcely ever sown after lea; and it is probable that the eggs are deposited the preceding year amongst the long grass where the insect is generally found, though it may also be seen amongst turnips, on fallows, &c.; but then does not appear to injure the after-crops. It is also stated, that Reaumur was of opinion that the insects only eat the mould; and that the damage to the plant is done by burrowing, and loosening the soil: but the author is of opinion that they *eat the roots* of the grass and corn; and quotes Stickney's *Observations on the Grub,* in support of this opinion. As to me, they appear solely to injure the oats, by eating the *shoot above ground.* I referred to the pamphlet; and, at page 11., it is stated, "I have observed that the principal damage done to the crops of grain by grubs is by their eating off the young shoots before, or soon after, they make their appearance above the surface of the earth; but when the plants have acquired more strength and substance, by spreading a little from the root, then there is not much to fear, as they are more able to recover from any injury they may receive from the bite." A little after, "I do not believe they come much above ground in the night-time, as they generally feed below the surface." As these statements do not exactly agree, I may as well state my experience, leaving it to the observations of others to determine which is right, or how far the difference of climate may change the habits of the insect. I do believe that they feed above ground at night; as some patches of oats, which I examined in 1831, appeared to have the blade eaten down to the surface, but the root appeared not injured; and, the weather setting in dry and warm, these patches became as good a crop as any in the field. A friend of mine kept some grubs among earth in a tumbler, and fed them with grass strewed on the surface; which appeared much nibbled in the morning, though he never found them on the surface; and those who have been so curious as to examine at night with a candle say that the surface of the ground is then quite covered with grubs. The insect is only an occasional visiter, and that only after wet seasons, and on damp spongy soils; and, as it is generally a wet cold spring when the grubs are most complained of, the plant may perish then, although it might not do so in more genial seasons; and, in the latter case, the grubs are possibly never thought of, or observed. In the year 1816, 1817, and 1818, they were numerous, and then never heard of till 1829, 1830, and 1831. Stickney observed that the principal part of the insects seen on the wing are males; and I found this correct to a surprising degree: he also states that lime mixed with the soil did not destroy them; but I should recommend quicklime, or some other acrid manure, to be applied at night on the surface (this might be done from a cylinder of wire, revolving like a roller), as likely to be beneficial, as it is said to be for slugs, &c. — *J. C. Farmer.*

I know a little plot of ground, on the southern or upland edge of the fens of Cambridgeshire (at Waterbeach it is), which, although surrounded by moistish pasture land, is broken up, and tilled as a garden. Out of, and upon, the soil of this garden, in about April, the pupæ of a species of gnat or crane fly may be seen creeping and crawling. They have prickles on their tail part, and one or two on the head part, and leave little furrows, or tracks, as they drag themselves through and over the dust: they are about three fourths of an inch long, and are of a dark colour, as is the soil. [Since I wrote the above and following (not over grave) remarks, I have seen fig. 395. *f*, in the *Encyclopædia of Gardening*, p. 428., which, without a doubt, represents the pupa I have spoken of: it is, in the *Encyclopædia*, stated to be the pupa of the *Tìpula cornicìna*.] Their appearance on the surface at this (April, or spring) season is to change into the winged state, and range the air. In sunny days of spring, while working in this garden, I have seen individuals escape from the above-described pupas, and fly off; and the empty pupa-cases are to be met with at almost every turn. The sunny exciting days which promote the above-named transformations are, as every one knows, frequently followed by cold, and even frosty, nights. In the mornings following such nights, the new-born gnats may be seen half-dead, resting here and there on the soil, or hanging on the leaves of some plant near the earth's surface, looking cheerlessly and miserably. All this is gossip, J. C. Farmer may think, and wide of his mark. Well, the only fact that I can tell which bears on J. C. Farmer's views is, that this said garden is cropless through the whole of the winter, save a few weeds, as groundsel, grass, and shepherd's purse, which are not thought worth the expense of removing, and which are deemed as some contribution towards a spring coat of manure. Well, then, as I take it that the eggs from which these said gnats are hatched are not deposited before the preceding autumn, when several of the crops, potatoes, cabbages, celery, &c. &c., are being got off, on what roots under ground, or herbage above it, are the larvæ hatched from the autumn-laid eggs (if the eggs be not laid till autumn) to be supported? I have just written far enough to make my "darkness visible;" and can now only join hands with J. C. Farmer in petitioning for some illumination, be it, in measure, that of rushlight or gas-light, on the subject. — *J. D.*

Art. VII. *London Horticultural Society and Garden.*

May 21. 1833. — *Read.* A communication on the means of obtaining abundant autumnal crops of the Double-bearing hautbois strawberry; by T. A. Knight, Esq., president.

Exhibited. *G*ladìolus blándus, from Mr. Hogg of the Ingatestone Nursery. Ramónd*a* pyrenàica, from J. Milner, Esq. A new kind of Caméll*ia*, from John Reeves, Esq. A collection of kinds of heartsease, from Mr. James Young, Epsom. *R*hododéndron catawbiénse var., Schizánthus retùsus, E′pacris grandiflòra, Kálm*ia* latifòlia, *A*′loe oblìqua, *E*rìca vestìta coccínea and sulphùrea; *P*olýgala latifòlia, *H*elichrýsum hùmile, Pelargònium macrifòlium, Gains*iànum*, Russell's Princess Augusta; two kinds of Azàlea, and various flowers, from Messrs. Chandler and Sons, Vauxhall. Cèreus speciòsus, speciòsus engrafted upon a species of *O*púntia, speciosíssimus, Jenkinsòn*i*, flagellifórmis, six hybrid kinds of Calceolària, and fruit of Wilmott's superb strawberry, from Mr. J. Green, gardener to Sir Edward Antrobus, Bart. A kind of pæony, raised from a seed of *Pæònia Moútan* *p*apaveràcea, from Sir A. Hume, Bart. *O*′xalis Pióttæ, Oncídium papílio, *D*odecàtheon Mèad*ia* var. élegans, azaleas, from Mrs. Marryatt. Asparagus, from Mrs. Grayson of Mortlake; 110 heads, their weight 31½ lbs.

From the Garden of the Society. Flowers: Cèreus Jenkinsòn*i*, *L*upìnus rivulàris, Nierembérg*ia* (*Petùnia*) phœnícea *D. Don*, Gesnèr*ia* latifòlia, *Pæònia Moútan* Bánks*ii* and *M. p*apaveràcea; Plectrìtis congésta, Collíns*ia* grandiflòra, *P*ýrus floribúnda, Pentstèmon procèrus and Scoúleri; *I*′ris tènax, Glýcine sinénsis, *R*òsa Bánks*iæ* lùtea and B. álba; *L*upìnus tomentòsus var., polyphýllus, polyphýllus pale blue-flowered, and polyphýllus white-flowered; *Pæòn*ia, kinds of; *Æ*′sculus, kinds of; *C*ratæ′gus, kinds of; Rhododendrons, *P*ancràtium illýricum; Cream-coloured hybrid azalea, and Deep yellow hybrid azalea, from plants received, in 1828, from J. R. Gowen, Esq.: both the hybrids were raised from seeds hybridised between Azàlea póntica and A. glaúca.

June 4. — *Read.* A communication on the management of the more freely flowering species of *C*áctus; by Mr. John Green, gardener to Sir Edward Antrobus, Bart.

Exhibited. The Old yellow double rose, from D. Davenport, Esq. Alstrœmèr*ia* pulchélla var., and *Pelegrìna*, from Lady Oakes, Mitcham. A collection of kinds of heartsease, from Mr. G. Glenny. A seedling rhododendron, Scarlet sweetwilliam, *I*′ris pállida, from Mr. Joseph Kirke. Specimen of a hoe, from Lord Vernon. Brompton stocks, *G*èum chilénse grandiflòrum, *V*ìola trícolor, *F*umària, a species of, from Mrs. Marryatt.

From the Garden of the Society. Flowers: Pentstèmon ovàtus, glandulòsus, procèrus, confértus, and venústus; *L*áthyrus grandiflòrus and califórnicus; Bignòn*ia* capreolàta; *L*upìnus ornàtus, rivulàris, nànus, lépidus, littoràlis, arbòreus, tomentòsus, varieties of; and polyphýllus, three varieties of; Calceolària bícolor, integrifòlia angustifòlia, and rugòsa latifòlia; Nierembérg*ia* grácilis and phœnícea *D. Don*; *M*ímulus ròseus and variegàtus; *I*′ris *X*íphium, varieties of; Eucalýptus pulverulénta, *C*aprifòlium flexuòsum, ciliòsum, and pubéscens; Xerophýllum tènax, Collíns*ia* grandiflòra, *D*elphínium grandiflòrum, Gaillárd*ia* aristàta, Eriophýllum cæspitòsum, Eschschóltzia califórnica, Málva Munroàna, Verbèna pulchélla, A'rum Dracúnculus; Ranúnculus, varieties of; roses, including Ròsa índica fràgrans, índica subálba, índica cérnua, índica supérba, índica sanguínea, índica Pallavicìni, and sinénsis màjor; Rose de Lisle, Ròsa élegans, Watts's climbing Chinese, Invincible carmine, Perthshire, Drummond's thornless, and Rose l'Heritieriàna; Amarýllis longifòlia and longifòlia white-flowered; Azàlea viscòsa físsa, flámmea, ne plus ultra, chrysolýctra, triúmphans, hùmilis, nudiflòra carnèola, scàbra, salicifòlia; Lílium lùteum máximum, Rouge particulière, Caligula, Tour de Babel, Jaune riche, rùbra magnifique; Robínia macrophýlla, microphýlla, híspida, Pseud-Acàcia, P. críspa, and P. inérmis; Pæònia albiflòra Whitlèyi and albiflòra Reevèsii.

June 18. — *Exhibited.* Fourteen Brandy apples, and thirteen Nonpareil apples, from R. Brook, Esq. F.H.S. Three hoes, from J. C. Loudon, Esq. [to prove the truth of our assertion, that what is called "Lord Vernon's hoe" is merely a slight variation of the Spanish hoe: his Lordship was told this, when he first gave the hoe his name, by Mr. Malpas, the foreman at Messrs. Weir's, Oxford Street]. Pinks, Knevett's new pine strawberry, Œnothèra macrocárpa, Calámpelis scàbra, from Mr. Joseph Kirke. Yellow double roses, from Mrs. Lawrence. [These roses were beautifully grown: the tree is on a western exposure, and is kept clear of insects by washing it abundantly with soapsuds. When the flower-buds first make their appearance, they are thinned out, so as to leave no more on the tree than experience has shown that it has strength enough to expand. From this case, and several others which have lately come under our notice, we are inclined to think, with Dr. Lindley, that the principal cause why the yellow rose seldom opens its blossoms fully, is a want of vigour in the plant: hence the use of thinning the buds, &c.] Kálmia latifòlia, and roses, from Mr. Glenny. Fruit of Keen's seedling strawberry, from J. Allnutt, Esq.

From the Garden of the Society. Flowers: Œnothèra missouriénsis, bìfrons, macrocárpa, and speciòsa; Pæònia albiflòra fràgrans and albiflòra Hùmei; Pyrèthrum cárneum, Verbèna chamædrifòlia, Pentstèmon digitàlis, pubéscens, diffùsus, lævigàtus, pulchéllus, and venústus; Caprifòlium flexuòsum, Cotoneáster affìnis and frígida; Robínia viscòsa, Brodiæ'a congésta, roses, pinks, Calceolària Herbertiàna; Lupìnus nànus, ornàtus; Ròsa índica sanguínea, índica Pallavicìni, índica subálba, and perpétua Lindlèyi; Italian evergreen rose, Countess of Lieven rose, Celestial Chinese rose, Perthshire rose.

July 2. — *Exhibited.* Hæmánthus multiflòrus, from Colonel Fielding. Hæmánthus multiflòrus, from Mr. Joseph Knight. Flowers of a collection of roses, from Mr. S. Hooker of Brenchley. Brown's superb rose, and a collection of kinds of heartsease, from Mr. Charles Brown of Slough. Lílium longiflòrum, from Mr. Hugh Lowe, Clapton Nursery. Pinks and calceolarias, from Mr. Glenny. Azaleas, from Lord Caernarvon. A species of *Bérberis* from the Himalayan Mountains, from Countess Amherst. Erìca viridiflòra, Nierembérgia (*Petùnia*) phœnícea, Verbèna venòsa, Fúchsia globòsa, hýbrida, virgàta, Thompsoniàna; Senècio atropurpùreus; Pelargònium Devòniæ, Lord Combermere, Sir Walter Scott, bipinnatífidum, Seedling scarlet; Yellow noisette rose, Cotylèdon corúscans, Erythrìna laurifòlia, Potentílla Hopwoodiàna, Late pink-flowered azalea, from Messrs. Chandler and Sons, Vauxhall.

From the Garden of the Society. Flowers: Clárkia pulchélla and élegans; Matthìola tricuspidàta, Eschschóltzia califórnica, Coreópsis lanceolàta, Lupìnus nànus and ornàtus; Spiræ'a ariæfòlia, Campánula macrántha, Ceanòthus americànus; Potentílla Mayàna, Russelliàna, atrosanguínea, Mackayàna, and formòsa; Tropæ'olum, brown-flowered; Verbèna chamædrifòlia and pulchélla; Rhododéndron máximum var., Pentstèmon diffùsus, pubéscens, pulchéllus, lævigàtus, grácilis, and venústus; Fúchsia virgàta and grácilis multiflòra; Quisquàlis índica, Stenáctis speciòsa, Nierembérg*ia* (*Petùnia*) phœnícea; Œnothèra bìfrons, macrocárpa, quadrivúlnera, missouriénsis, densiflòra, speciòsa, and a new variety of odoràta; Calochórtus spléndens, álbus, pulchéllus, and lùteus; Escallòn*ia* rùbra, *L*ílium japónicum, *S*empervìvum glutinòsum, Passiflòra kermesìna, Dìetes bícolor. Flowers of georginas; and of the following roses: — Gabrielle d'Estrées, Duchesse de Montebello, Renoncule, Bougainville, Marie Louise, Mordaunt de Launay, Grande Henriette, Bizarre de la Chine, Roxalane fleur rose tendre hybrid Bengale, Rouge admirable, Bluss moss, Agathe singulière, Octavie Coerelle, Nubienne, Double red noisette, Chamney's red cluster, Renoncule rouge, Negresse, Brown's superb, Muscòsa màjor, Parny, *R*òsa índica Pallavicìn*i*, índica sanguínea, and perpétua Lindley*i*; Drummond's thornless rose.

The two Exhibitions alluded to (p. 383.), on the 25th of May and the 22d of June, were well attended, and appear to have given great satisfaction; though, as it is impossible to please every body, we have received the following communication on the subject of the first exhibition; and we publish it, because it may possibly afford some useful hints to the Society.

The Exhibition of Flowers at the Horticultural Gardens, on the 25th of May, was any thing but satisfactory; and was productive of disappointment to all those who attended the gardens in the expectation of seeing a fine collection of plants. That so many medals should have been bestowed is extraordinary; and is a proof rather of the liberality of the Society and judges, than affording any information as to the merits of the different exhibitors. That some of the plants were well bloomed, I am ready to admit; and, also, many of the persons deserved credit for their exertions in raising the different seminal varieties: but, viewing the collection as a whole, the display fell very short of what one might have anticipated. There was, perhaps, something to commend, but there was little deserving of reward; and a much better show might be seen, at many of the nurseries about town, almost in every week throughout the year. My object in addressing you is not, however, to draw invidious comparisons, or to throw a damp upon the exertions of individuals: on the contrary, I am most anxious to forward the views of the Society, by promoting such exhibitions; feeling assured that, if they were under good management, and were properly encouraged and supported, they would tend much to the advancement of horticulture.

The cause of the paucity of plants sent to the Garden I apprehend to be, the short notice given to the public. Should the Society find that the plan which they have adopted this year (I believe, for the first time) succeeds, and gives satisfaction to the subscribers, would it not be much better that notice should be given, in the autumn of each year, of the exhibitions to take place in the year following, both in Regent Street and at the Gardens? Instead of allowing an indiscriminate selection of flowers at the option or discretion of the exhibitor, would it not be more judicious to limit it to a certain number, and also to a particular genus or species; at any rate, for the principal prize? Thus, the same description of plant would not be shown oftener than once in three or four years, and encouragement would be given to the cultivation of a greater variety of plants. To make the exhibitions more attractive, it would be desirable to offer a medal for the six or twelve best stove or green-house plants alternately; and a prize might also be given (at any rate, at the spring shows) for a certain number of the finest herbaceous or alpine plants, many of which are susceptible of great improvement under proper cultivation. The same arrangement should be observed with respect to fruits, as far as it will apply. A gold medal might be offered for the principal prize, and a silver one for the stove or green-house plants; but these medals should only be awarded where great merit was displayed: and it should rest with the judges to decide whether the collection was such as to warrant one or both being given at all. The medals should be made large and handsome, for the purpose of stimulating individuals to exert themselves, by rendering them objects worthy of attainment. Although I consider that the Society, by giving these medals, would only be fulfilling one of the objects for which it was first established, viz. that of encouraging and promoting a more general cultivation of plants, still it would not be fair to trench too far upon the funds of the subscribers, by imposing all the burden of providing the medals upon the Society. I would, therefore, suggest that the surplus arising from the sale of tickets for admission to the exhibitions, after providing for the necessary expenses attending them, should be set apart for this purpose; and, should the surplus be such as to justify a greater expenditure, minor prizes might be given, at the discretion of the Council; at any rate, every inducement ought to be held out to insure competition, always keeping in view the necessity of not being too lavish in bestowing rewards, and only doing so where great and superior merit was displayed: otherwise, the medals of the Society will soon cease to be held in the estimation in which they ought to be. No person should be allowed to receive the gold or silver medal twice for the same description of plant; but any individual having obtained the medal for the stove, green-house, or herbaceous plants, might be allowed to show each time, provided different genera, species, or varieties were forwarded. For the camellias, and such plants as sport when raised from seed, a prize of some description might be given for the best seedling; but in no case should one be awarded unless the flower shown was decidedly and absolutely distinct from every known variety. It would also be desirable to exclude all cut flowers, where it is practicable. After viewing the miserable appearance which the rhododendrons, azaleas, &c., which were cut, made at the Gardens a few days back, no one will, I conceive, advocate their being received; besides, it is open to much objection. Another regulation ought to be made, making it imperative for every individual showing for the prizes, to put in, with their plants, declaration upon honour, stating that they have been in their possession for the period of six or twelve months: any person at all acquainted with the practices which obtain prizes at the various shows will see at once the wisdom of enforcing this rule.

I have thus thrown out a few hints, which you will, perhaps, do me the favour to insert in your Magazine. If it is the intention of the Society to continue these exhibitions, they should be conducted on some fixed and permanent plan, in order that those who are disposed to patronise them may be prepared to send something worth the inspection of the members of the Society and their friends. This was by no means the case at the last Meeting: and any arrangement that can be made to prevent so great a disappointment as was felt by very many who attended it, must be advantageous to the cause of horticulture. I am not disposed to criticise too severely the measures of the Council; but every one must have observed great want of judgment in most of the arrangements with reference to these fêtes: and it would appear as if the object of them was more with a view of procuring money towards assisting the funds of the Society, than promoting the advancement of science.

Before I conclude, I think it necessary to make some observations with respect to the selection of the judges. In numbers, I think, they ought not to be less than five; three of whom should be nurserymen, or persons having plants constantly under their view. In the last exhibition, the gentlemen appointed as judges neither displayed judgment nor discrimination. A gentleman may be an excellent botanist, or a good judge of the particular flower which it may be his fancy to cultivate; but, before any individual can be capable of passing an opinion upon the growth and perfection of a general collection, he ought to have a thorough knowledge of plants: and this is only to be acquired by men in the profession, either as gardeners or nurserymen. Therefore, I think, the majority of the judges ought to consist of these; the other two should be members of the Society. — *E. London, May* 28. 1833.

The Third Exhibition was held at the Gardens on the 20th of July, and gave very general satisfaction. As was expected, a greater quantity and variety of fruits were exhibited than on the two former occasions; and among these were some particularly excellent grapes. Mr. Forrest (who has left the Duke of Northumberland, and has commenced landscape-gardener and garden architect, at Turnham Green, on his own account) informed us that he never saw finer bunches and berries than those of the specimen to which the first prize was awarded. We must defer the details till our next. — *Cond.*

ART. VIII. *Covent Garden Market.*

	From			To		
	£	*s.*	*d.*	£	*s.*	*d.*
The Cabbage Tribe.						
Cabbage, White, per dozen	0	0	9	0	1	0
Cauliflowers, per dozen	0	1	6	0	2	6
Broccoli, Cape, per bunch	0	0	8	0	1	6
Legumes.						
Peas per sieve	0	2	0	0	3	6
per sack	0	6	0	0	8	0
Beans, Windsor per sieve	0	1	0	0	1	3
per sack	0	3	6	0	5	0
Kidneybeans, per half sieve	0	1	0	0	1	6
Tubers and Roots.						
Potatoes per ton	3	0	0	3	10	0
per cwt.	0	3	0	0	3	6
per bushel	0	1	9	0	2	0
New, per pound	0	0	1	0	0	3
Turnips, White, per bunch	0	0	3	0	0	4
Carrots, per bunch:						
Old	0	0	4	0	0	6
Horn	0	0	6	0	0	8
Horseradish, per bundle	0	2	6	0	4	0
Radishes:						
Red, per dozen hands (24 to 30 each)	0	0	9	0	1	0
White and Red Turnip, per bunch	0	0	1½	0	0	2
The Spinach Tribe.						
Spinach per sieve	0	1	6	0	0	0
per half sieve	0	1	0	0	0	0
Sorrel, per half sieve	0	1	0	0	0	0
The Onion Tribe.						
Onions, for pickling, per half sieve	0	3	0	0	5	0
Garlic, per pound	0	0	8	0	0	0
Shallots, per pound	0	0	8	0	0	0
Asparaginous Plants, Salads, &c.						
Artichokes, per dozen	0	1	6	0	2	6
Lettuce, per score:						
Cos	0	1	6	0	2	6
Large Cabbage	0	1	0	0	1	3
Celery, per bundle (12 to 15)	0	1	6	0	2	6
Small Salads, per punnet	0	0	2	0	0	3
Watercress, per dozen small				0	3	6
bunches	0	6	0	0	0	0
Burnet, per bunch	0	0	6	0	0	0
Pot and Sweet Herbs.						
Parsley, per half sieve	0	1	6	0	0	0
Tarragon, per doz. bunches	0	5	0	0	0	0
Fennel, per dozen bunches	0	2	0	0	0	0
Thyme, per dozen bunches	0	3	0	0	0	0
Sage, per dozen bunches	0	3	0	0	0	0
Mint, per dozen bunches	0	2	6	0	0	0
Peppermint, per doz. bunch.	0	2	6	0	0	0
Marjoram, per doz. bunches	0	4	0	0	0	0
Savory, per dozen bunches	0	2	0	0	0	0
Basil, per dozen bunches	0	4	0	0	0	0
Rosemary, per doz. bunches	0	4	0	0	0	0
Lavender, per doz. bunches	0	3	0	0	0	0
Tansy, per dozen bunches	0	2	0	0	0	0
Stalks and Fruits for Tarts, Pickling, &c.						
Rhubarb Stalks, per bundle	0	1	0	0	0	0
Angelica Stalks, per pound	0	0	4	0	0	0
Sea Samphire, per small punnet	0	0	6	0	0	0
Vegetable Marrow, per doz.	0	1	0	0	0	0
Capsicums, per hundred	0	2	0	0	2	6
Edible Fungi and Fuci.						
Mushrooms, per pottle	0	0	9	0	1	0
Morels, dried, per pound	0	14	0	0	0	0
Truffles, English, per pound	0	14	0	0	0	0
Fruits.						
Apples, Dessert, per ½ sieve:						
Juneating	0	2	0	0	0	6
Sack and Sugar	0	2	0	0	2	6
Baking, per bushel	0	3	6	0	5	0
Peaches, per dozen	0	12	0	0	24	0
Nectarines, per dozen	0	12	0	0	24	0
Apricots, per dozen	0	2	0	0	3	0
Almonds, per peck	0	6	0	0	0	0
Plums, Dessert, per punnet	0	1	6	0	2	6
Cherries, per pound	0	0	2	0	0	4
Bigarreau	0	0	4	0	1	0
Gooseberries, per half sieve	0	2	0	0	2	6
Currants, per half sieve:						
Black	0	3	0	0	3	6
White	0	2	6	0	3	0
Red, for wine	0	3	6	0	4	6
Red, dessert	0	5	0	0	0	0
Raspberries, Red, per gallon (2 pottles)	0	0	6	0	0	8
Walnuts, Green, per bushel	0	3	6	0	5	0
Pine-apples, per pound	0	5	0	0	8	0
Hot-house Grapes, per lb.	0	3	6	0	5	0
Figs, per dozen	0	6	0	0	0	0
Melons, per pound	0	1	6	0	2	6
Dutch, each	0	2	6	0	5	0
Oranges per dozen	0	1	0	0	2	6
per hundred	0	6	0	0	14	0
Lemons per dozen	0	0	9	0	2	0
per hundred	0	6	0	0	14	0
Brazil Nuts, per bushel	0	12	0	0	16	0
Spanish Nuts, per peck	0	2	6	0	0	0
Barcelona, per peck	0	5	0	0	0	0

Observations. — The supplies of vegetables have not being so heavy this season as last, but the demand has been better, consequently the growers have realised better prices, and the market has presented a more cheerful appearance. Fruit has come to hand in excellent condition, in consequence of the general prevalence of dry weather during the months of June and July to this period. Cherries generally an excellent crop, and of superior quality, realising good prices, considering the quantities furnished. Currants also in good supply, and of superior quality; prices good, at present rather high. Gooseberries have not been so plentiful. The demand for the better sorts of fruits, such as forced peaches, grapes, nectarines, has been but limited; as the supply has been tolerably good, the prices have been, and continue to be, very moderate. Pine-apples, in the early part of the season, brought excellent prices, but at present, in consequence of increased supplies, and the coming in of other fruits freely, they are not in much demand, and the prices are very low. The crop of walnuts is very heavy, and the supply for pickling considerable, but little in demand; prices very low. Potatoes come to hand in great abundance, with every prospect of a general good crop; the present prices are very low, but as the supply of other vegetables falls off, they may sell better. Peas and beans are at present cheaper than they have been throughout the season: French beans are coming to market in good quantities, and the present rains will ensure a good supply of vegetables throughout the autumn and winter. — *G. C. July* 22. 1833.

The Hungerford Market, a judiciously arranged and handsome building, by that distinguished architect of markets, Charles Fowler, Esq., has been lately opened for the sale of vegetables, and also of fish. As it borders the Thames, it is evidently well adapted for both purposes. Fish may be brought up from the Nore; and vegetables and fruits brought down from the banks of the Thames, as far as Walton, or even Staines, where immense quantities of peas are grown. There is ample room for ice-cellars below, for keeping both vegetables and fish. There is one thing wanting to both Covent Garden and Hungerford Markets, which we could wish to see supplied: it is, a properly contrived coffee-room or public room, in which the public, ladies as well as gentlemen, might eat fruits; and be supplied not only with all the best kinds, but with all the proper accompaniments, of creams, ices, liqueurs, and, above all, that divine beverage the best Mocha coffee, with powdered sugarcandy. — *Cond.*

ART. IX. *Obituary.*

DIED, in the middle of April, 1833, aged 83 years, *Mr. Sinclair*, the father of Mr. Sinclair of the New Cross Nursery. In his earlier years he was considered one of the best gardeners in the south of Scotland. He came to England in the pursuit of knowledge of his business in 1774, and in 1778 became gardener to the Hon. G. Baillie of Jerviswood, at Mellerstane, where he continued until his death, a period of 55 years; but he had retired from business a short time before his decease. It was stated in the provincial newspaper which noticed his death at the time it happened, that his remains were "followed to the grave by the grandson of the Mr. Baillie by whom he was first employed. Similar instances are rare; but their occurrence reflects equal honour upon the kindness of the employer and the faithfulness of the employed." (*Kelso Mail*, April 25. 1833.) Some nine or ten weeks preceding this, died the present Mr. Sinclair's uncle at Bonnington (Falls of the Clyde), near Lanark. He had been superintendent of the gardens, grounds, and farms there, for many years.

THE
GARDENER'S MAGAZINE,
OCTOBER, 1833.

ORIGINAL COMMUNICATIONS.

Art. I. *Notes on Gardens and Country Seats, visited, from July 27. to September 16., during a Tour through Part of Middlesex, Berkshire, Buckinghamshire, Oxfordshire, Wiltshire, Dorsetshire, Hampshire, Sussex, and Kent.* By the Conductor.

The last time we passed deliberately through this tract of country was in 1812 and 1813; and, comparing it as it is now with what it was then, we have been much gratified by some things, and found cause for regret at several others. We have found a decided improvement in the cottage gardens, we may say everywhere, by the more frequent appearance of flowers in them, and by the prevalence of the China rose, trained against the walls. The cottage dwellings are, on the whole, not worse; and on some estates they are a good deal improved. Many cottages, which before had no gardens, have now considerable portions of ground added to them; unfortunately, not generally adjoining the cottage, but in some neighbouring field; but still there is now hardly a cottage which has not ground attached to it in some way or other. Here and there throughout the country we observed labourers' cottages, of a superior description, erected or erecting, with platforms or terraces round them, and lofty ornamental chimney tops, with ornamental barge-boards, pendants, and pinnacles. We think we may fairly trace the origin of these to the circulation of our *Encyclopædia of Cottage, Farm, and Villa Architecture;* a book which, we are happy to say, has been well received everywhere, and which, we trust, will ere long produce a visible good in every part of the island. In agriculture we do not think any very great improvement has taken place, except upon particular estates. In almost every part of the tract which we passed through, three heavy horses, in a line, attended by a man and boy, were to be seen dragging a clumsy plough, of local construction, at a snail's pace; turnips, almost everywhere, were sown broadcast, or, if drilled, on a flat surface; and in only one or two instances, under the direction of Scotch bailiffs, did we see Finlayson's harrow substituted for the brake or cultivator. Plantations of trees have been made in many places which were unenclosed common when we last passed through them; and by the formation of these plantations, and the increased growth of others, the general aspect of the landscape is, in many parts of the country, entirely changed. We were nowhere more struck with this than on the road between Oxford and Woodstock, which, instead of the bleak and dreary appearance it formerly had, is now bordered with belts of trees, and sprinkled with cottages. There are now on this road no less than three nursery gardens.

The roads have been everywhere more or less improved, but still they fall far short of what they ought to be, in order to put the traveller or carrier, who uses only one horse, on a footing with him who can afford to use a greater number. This ought to be the *beau idéal* object of road-making, and it is only to be done by extending improvement to all the cross roads, and by allowing no slope in any road whatever to exist greater than that of the Simplon, or about one in forty. We have elsewhere shown how this might be gradually accomplished on all the roads in the country, simply by the employment of the superfluous labour of the different parishes; or, in other words, by giving all able-bodied men, who apply for parish relief, work at a fair rate of wages.

One of the most gratifying marks of improvement which we observed was the establishment of Bell and Lancasterian schools in almost every town, and in many villages. There are also a few infant schools. In our opinion, the subjects taught in these schools at present, are not the most likely to enlighten the minds of the pupils; but it is a great step to have had a commencement made in any way. This commencement, we have no doubt, will end in a national system of education, at the expense of all, and for the benefit of all.

With respect to gardens and country-seats, we may say, that, on the whole, we never saw them in a state of worse keeping. Generally speaking, the more extensive the park and gardens, the worse they are kept. We scarcely recollect above one or two noblemen's places highly kept; and even one of these will no longer be an exception to the general rule, since pecuniary difficulties have occasioned eleven garden labourers to be discharged from it at once. The noblest place in Britain, perhaps in Europe, Blenheim, is going rapidly to decay. Before entering the great gates at Woodstock, the stranger sees two trees (an ash and a sycamore), each 4 ft. or 5 ft. high, growing out of crevices in the stone piers. When the gates are opened, he observes half the lake turned into a morass covered with rushes. Advancing to the house, he finds part of the architrave over the eastern gateway fallen down; and, if he goes as far as the cascade, he will find that the head or dam is no longer in a state to retain water; and that, of course, the lake is not so full as it ought to be by five or six feet. The duke's private garden, of which we think very little, we shall speak of hereafter in detail.* Almost the only highly kept gardens which we saw were those of small proprietors, professional men, merchants, or bankers. Of these, we must give the decided preference, for beauty and keeping united, to the following, which we put down in the order in which we saw them: — Drayton Green, near Acton, Mrs. Lawrence; Taplow House, near Maidenhead, Pascoe Grenfell, Esq.; Bishop's Stoke, near Southampton, the Rev. Thos. Garnier; the garden of the Misses Garnier, near Wickham; and Redleaf, near Tunbridge Wells, William Wells, Esq. The last was by far the most beautiful, and, except the garden of the Misses Garnier, the most perfectly kept, of all the places which we saw. There are a number of gardens which approach to the above, some in point of high keeping, others in scenic beauty, and some in both united; but they have all something about them which prevents our giving them unqualified praise. Among the most beautiful, and at the same time highly enriched, places which we saw, after Redleaf, was Montreal, near Sevenoaks; but the house and kitchen-garden are unworthy of the pleasure-ground. Littlecot Park, near

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* Let not this view of the decay of noblemen's gardens induce gardeners in want of places to despair. Every gardener who has seen much service knows that a situation under a rich tradesman, merchant, or small landed proprietor is productive of far more comfort to him than one under a nobleman; where so many intermediate persons come in between him and his employer, that he is at all times liable to misrepresentation, and to be discharged without even an opportunity of explanation. As far as we have observed, the pay given to their head gardeners by men who are themselves in business is as great as, in many instances greater than, that given by noblemen. As the country goes on improving, the small places will greatly increase, and, with them, a taste for gardening, and situations for first-rate gardeners.

Hungerford, General Popham, is as highly kept as a place can be; and the house is faultless as a piece of beautiful antiquity in the highest preservation: but the pleasure-ground wants replanting with finer shrubs, of less coarse growth than those by which it is at present occupied. Dropmore, as far as it is completed, ranks among the very first places in point of order and keeping; but there is a great deal to do there, and, besides, there is no kitchen-garden connected with the other scenery of the place. In point of skill displayed in landscape-gardening, decidedly the most interesting places we saw were Highclere (Earl of Caernarvon's), and Bearwood, near Reading, the seat of J. Walters, Esq.* Nothing could exceed the order and high keeping of both the pleasure-ground and kitchen-garden at Norman Court; and the house there is also good: but the pleasure-ground is too confined; and, altogether, the scenery about the house wants rearranging to make it constitute a good whole. Among the larger places of the greatest natural beauty, and judicious general arrangement, were Highclere, the Grange, and Broadlands. We never were more struck with any thing than with Highclere, particularly with the variation of the grounds and views, and with the disposition of the trees. The first sight of the portico at the Grange, looking down upon it embosomed in wood, from the grove on the opposite bank, came upon us like enchantment. It reminded us of Martin's Paphian Bower;

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* We may observe here, that in not more than one or two of the numerous places at which we called, where alterations had been made, or were going on, was a landscape-gardener regularly employed. An architect is called in because he cannot be done without; but the alterations in the grounds are generally concocted by the master or mistress and the gardener, and carried into execution by the latter. Sometimes a nurseryman is called in; but, with one or two exceptions, among which we have great pleasure in including Mr. Page of Southampton, these gentlemen are very deficient in taste.

From this wish of masters and mistresses to lay out their own grounds, arises, on their part, a good deal of reading about landscape-gardening, and the desire of studying it by visiting gentlemen's seats in different parts of the country. The result of this will be a great and permanent improvement in this department of our art. We say great and permanent, because experience has shown that there is no way of securing and rendering permanent improvements either in taste or science, but by their general diffusion. This affords a noble prospect to all who take an interest in these matters, or in the progress of society and their country; and it ought to show gardeners the absolute necessity of their paying every possible attention in their power to landscape-gardening and garden architecture. Let all who are under thirty begin sketching trees from nature; and all who are above that age set about a course of reading and reflection on the subject: and, further, let all who read this Magazine pay particular attention to the notes which we make during our tours; for the main object of these notes is to improve the taste of gardeners.

but is greatly superior even to that picture of ideal beauty in its noble foreground. The situation of the house at Broadlands, and the view from it, with the noble river forming the boundary to the lawn beneath, and the meadows and finely wooded hills beyond, form the very *beau idéal* of an English country-seat. We were happy to find that, in all the places above named, and in several others, our remarks on the edgings of walks have been duly appreciated and acted on.—But, lest we should be thought partial, or should forget some person or place that ought to be mentioned in these rather hurried introductory remarks, we shall now proceed to details; premising that the whole of the remaining portion of these notes was written, ready for the press, while on our tour, every evening or the following morning: so that the remarks on each place form an exact transcript of what we felt at the time of seeing it.

Mrs. Lawrence's Villa, Drayton Green.—*July* 27. This place, of limited extent, and possessing no material advantage except that of a dry soil on a subsoil of gravel, has been rendered a perfect *bijou* of floricultural beauty by the exertions and taste of Mrs. Lawrence. All the most rare and beautiful hardy flowers and peat earth shrubs are here assembled, and beautifully disposed in groups, in the natural or picturesque manner, on the smoothest lawn; interspersed with a few trees, and decorated with fountains, statuary, vases, rockwork, and basketwork. There is a green-house full of choice articles; and there is not a plant that is not grown in the very highest degree of perfection, or a scene that is not in the highest order and keeping. Among the plants that struck us as profusely covered with bloom, and beautifully grown, were the single and double *C*lématis flórida, the yellow Chinese and yellow Noisette roses, the Calandríni*a* grandiflòra, *Petùnia* phœnícea and nyctaginiflòra; all the new fuchsias; Salpiglóssis pícta, atropurpùrea, and Barclay*àna*; Schizánthus pinnàtus, retùsus, and Hoóker*i*; *V*erbèna *c*hamædrifòlia, and others; showy nicotianas, *L*upìnus mutábilis, and others; Clárk*ia*, Maurándy*a* Barclay*àna*; *S*álvia angustifòlia, with its exquisitely blue blossoms; *A*nagállis Webb*iàna*, and others, &c.

A straight line or row of shrubs, used as a screen, is successfully varied by acute triangular projections on the turf, in the manner of what mantua-makers call vandykes (in allusion to the style of shirt-collar usually found in Vandyke's portraits); the triangles are of irregular size, at different distances of from 3 ft. to 5 ft., and are filled with flowers. The lawn here is one of the most beautifully kept we ever saw; and it is shaven with the mowing machine alone, with only the assistance of shears at the roots of the shrubs. Mrs. Lawrence attributes much of the high order and keeping of the whole to the care and attention of her head gardener, Mr. Cornelius, brother to the foreman of that name in the hot-houses of Messrs. Lee's nursery.

Aldine Cottage, —— Bagster, Esq., near Shepherd's Bush. — *July* 29. A very neatly kept small place, well worthy of notice, on account of the ardent love of gardening, and of order and neatness, displayed by the occupier; and by the improvement which he has made on Nutt's bee-hives, so as to render them more likely to come within the reach of the labouring cottager. Details of Mr. Bagster's hive, by himself, will be given in a future Number.

Briggs's Villa, Acton. — Beautifully situated on a bank which slopes down to a small brook; the lawn studded with choice shrubs, and varied with beds of flowers, and the steps to the house embroidered with pots of house-plants. The main entrance literally stopped by a hedge of Campánula pyramidàlis, at least 6 ft. high. We have admired this place for years, without having before mentioned it in print.

Gunnersbury House, A. Copland, Esq. — This is a fragment of a park, which was laid out by the celebrated Kent, about the year 1740. The old features remaining are some fine cedars and two pieces of rather naked water. The present house was built by Mr. Copland, on the summit of a brow, commanding a park of 50 acres, with the rich cultivated scenery of Middlesex beyond, and in the extreme distance the Surrey hills. Among the fine features of this place may be enumerated a straight terrace on the lawn in front of the house, terminating in an alcove at one end, and, at the other, passing through a triumphal arch to a winding walk, carried along the brow of the hilly part of the grounds, so as to display the leading features of the park and the distant scenery, on the one hand; and, on the other, highly kept lawn, with choice shrubs, and all the usual furniture of flowers, basins, fountains, sculptures, rockwork, basketwork, seats, and trellises; added to these, there are a very handsome billiard-room containing also an organ, a flower-garden, and a large piece of water. The flower-garden is included within a circular walk, with a smaller circle in the centre, and two semicircular basins of water, with an arcade of trelliswork. All the forms are perfectly simple, but they are very effective, especially when clothed, as they now are, by the most select plants. One circumstance in the plan of these beds deserves notice: they are placed on turf, but surrounded by a margin, of the breadth of 4 in., of gravel, within which is an edging of box, kept low and flat, so as to form an inner margin corresponding in width with the outer one. The effect is highly artificial, and appropriate to this description of flower-garden. The arcade of trelliswork consists of arches of iron wire, alternately rising and reversed, so as to give the idea of a festooned wreath of flowers. The only defect we found in this circle of festooned work was the want of breadth, which might be easily supplied by means of a few cross wires, so as to retain a more ample mantle of vegetation. Among the blue flowers in this flower-garden were *A*nagállis Monélli and *A.* latifòlia, the common convolvulus, Tradescántia, the blue verbena, the blue lobelia, and the heliotrope. Various little circular beds of mesembryanthemums were eminently beautiful as the sun happened to shine full upon them while we walked round. The piece of water is almost the only formal part of the pleasure-ground. At whatever point you stand, you see the entire outline, which is what botanists would call orbiculate, or, in common language, shaped like a horsepond. It would be easy to vary it by one or two narrow islands along the sides, being careful not to destroy breadth of effect by placing any near the centre, or equidistantly along the margin. Among the commendable practices, of which we saw a number at this place, we may mention that of using the vaults under a summer-house as a place for growing mushrooms. We found an excellent crop on these beds, even at this dry hot season, and were informed by Mr. Mills (the head gardener) that he had them in abundance all the year. In the drying ground we observed copper wires, about three sixteenths of an inch in diameter, instead of lines. The poultry yard and rabbitry are very complete; but the latter facing the south, and having a thin slate roof immediately over the hutches, the rabbits are found not to thrive quite so well in the summer time, as they do in the winter. The worst thing about Gunnersbury is the kitchen-garden. The soil is thin, on a gravelly bottom, and the compartments are interspersed with fruit trees, which neither bear fruit nor permit the soil beneath to bear good crops of well-flavoured vegetables. In consequence of the compartments being thus occupied, the wall borders are obliged to be cropped, and the trees, consequently, are rendered little better than useless. All these matters, however, are undergoing substantial reforms by Mr. Mills, well known to be one of the best practical gardeners of the day. In the course of the twelve or thirteen months which he has been here, he has not only brought the place into good general order, but has effected most extensive permanent improvements. The gardener's house is very properly placed in the kitchen-garden, detached, in a high and dry situation, and not surrounded by trees or shrubs, as is too often the case: it has a kitchen, back kitchen, and parlour on the ground floor, and three good bed-rooms over. Nine gardener's houses in ten are rendered unhealthy by being placed behind the hot-houses in damp situations; by being, when detached, closely surrounded by trees or shrubs; or by having the bed-rooms on the ground floor. Nothing can be a greater mistake on the part of masters, than to suppose that servants can do their duty when not rendered thoroughly comfortable.

A Villa between Gunnersbury and Brentford has a kitchen-garden which faces the road. The coping to the walls of this garden is formed by a vine trained along the upper edge of the wall in the manner which Mr. Gorrie (p. 464.) recommends to be done with the Ayrshire rose.

Mr. Ronalds's Nursery, Brentford. — In the shop there were two handsome models of heath and moss houses, made by two young men of Stirling, candidates for employment in this way on a large scale. They were brought into notice by Messrs. Drummond, the patriotic seedsmen of that town, and we hope they will be employed by some wealthy amateur in England. We noticed specimens of twenty different sorts of peas, the names of some of which we had never before heard of; a proof, as we have elsewhere observed, that gardeners ought always to give a certain licence to their seedsmen, in order that they may have every new thing sent to them. We also found, by a prospectus, that the large and handsome conservatory (Vol. V. p. 268. fig. 55.), erected by the spirited plumber and glazier, Mr. Roberts of Oswestry, is to be disposed of by raffle, as soon as 800 subscribers of a guinea each can be found. This sum, we are assured, and we can readily believe it, is less than one half of what it cost. The nursery at Brentford, and at the four other places where Mr. Ronalds has grounds, is everywhere in the very best order, and in no season have the articles been better grown; in few, indeed, so well. Besides fruit trees, Mr. Ronalds has always been celebrated for raising garden seeds, and especially the seeds of flowers. We saw immense quantities of the ice plant, Salpiglóssis, Schizánthus, *Petùnia*, Browáll*ia*, balsams, &c., in pots in the green-houses for ripening seeds. Among the shrubby plants in the open ground finely in flower were, Ceanòthus cærùleus; a hedge of rose acacias; scarlet coluteas, both in flower and seed, at once beautiful and singular; Sólly*a* heterophýlla; and a very handsome plant of Arália spinòsa with a branchy top, and its broad leaves forming horizontal lines like one of Martin's cedars. There is here the best stock which we have seen of *Ribes* speciòsum (at a guinea a plant), and abundant crops of cedars, *P*inus Larício, P. *Cémbra*, and other rare and valuable pines, rising from seed. The same may be said as to a number of American trees and shrubs.

The Fruit-garden of Mr. H. Knevett, at Isleworth. — This is a very old fruit-garden on excellent soil, and well subdivided by brick walls, on which the finer kinds of fruit are trained. The intervening compartments are almost entirely devoted to strawberries, and to gooseberries, and other fruit shrubs and fruit trees. The only culinary vegetables grown are tart rhubarb and sea-kale. This garden, and a number of others surrounding it, from the Thames on the one hand to the Brentford road on the other, may be considered, in gardening history, as classic ground. It has probably been garden ground for centuries; for the first nursery mentioned in British history was at Twickenham; and Batty Langley, the first gardening author who figured fruits, lived there, and his house was, till lately, pointed out to those who enquired after it. Mr. Henry Knevett is proprietor of the ground which he cultivates, and it is sufficiently extensive to afford him a handsome income. He probably lives better than nine tenths of the Caledonian gentry do at this moment, when at their country seats, and without company. We happened to call while he was at dinner, and saw the whole of his fine family, five sons and two daughters, all grown up, sitting round his table. His strawberry we believe, with Mr. Munro, to be the very best now in cultivation.

The Botanic Garden of the late Mr. Swainson at Twickenham. — We first visited this garden in April, 1804, during the lifetime (if we are accurate in our recollection) of the late Mr. Swainson, a good practical botanist, and much attached to gardening. Every thing, we recollect, was then in the very highest order and keeping, under the care of Mr. Arthur Biggs, now of the botanic garden, Cambridge. The general impression on our minds, for the last fifteen years, has been, that this garden, as such, no longer existed; but we were agreeably surprised to learn that we were mistaken, when attending the meeting (noticed p. 463.) which was held, on July 18., to arrange a plan for forming a Metropolitan Botanic Garden, by the present gardener, Mr. Castles, coming forward, and voluntarily offering a donation of 500 species. Mr. Castles did not succeed to the management of this garden till some years after Mr. Biggs left it. He found that Mr. Biggs's immediate successor had taken the shortest method of managing the place, viz., pruning the arboretum by clipping all the trees and shrubs to round heads; allowing the more tender herbaceous plants to die off without renewing them, and those that remained, to cover the surface in a natural manner. The hot-house, which, in Mr. Biggs's time, was filled with the most choice tropical plants of that day, was turned into a vinery, as was also the large green-house; and the smaller hot-houses and pits were neglected, or used for raising early cucumbers and potatoes for sale. Mr. Castles, having been known to the late Mr. Swainson, was allowed by his widow a certain licence as to restoration; and the very existence of the place as a botanic garden may be said to be entirely owing to his enthusiasm. He is allowed a very inadequate sum for keeping the whole in order, and the privilege of selling plants. The latter privilege amounts to next to nothing in a pecuniary point of view; but it enables Mr. Castles to make exchanges with other botanic gardens; and thus, in some degree, to keep up the character of the place. All the circumstances considered, he has the highest merit; and we hardly know any one but himself, who, with such slender means, could maintain so respectable an appearance, and who could bear up so well against an increasing pressure of difficulties. Whoever wishes to see the ruins of a botanic garden of the old school, combining a Linnæan arrangement with a general disposition of the masses in beds, so as to produce ornamental or picturesque effect, ought to visit this garden. They will there see some curious specimens of trees and shrubs, and some good ferns. If they wish to purchase herbaceous plants, they may procure a collection of 500 or 600 of the commoner sorts cheaper than they can get them anywhere else. On looking into the back sheds, we were astonished at the completeness of the original arrangements. There were seven pumps with cisterns, and places for mould, pots, tools, &c. Mr. Swainson, we were informed by Mr. Castles, delighted to have every thing perfect of its kind; and Mr. Castles seems to take equal delight in struggling against adverse circumstances, so as to maintain a degree of order and neatness in these sheds corresponding with the original arrangements. There is still a collection of choice botanical works in the house, and a herbarium in good preservation. The place was originally laid out and planted by the late Mr. Grimwood of Kensington. On leaving it, a cedar was pointed out to us, on the entrance front of the house, which had been struck by lightning, the effect of which was to occasion a number of woody globular excrescences to protrude themselves from the trunk. A species of lettuce was also shown us, raised from seeds received from an adjoining oil mill. These seeds are said to be imported from the south of Europe, but from what particular part Mr. Castles has not been able to learn; and they are found to produce more oil than linseed. We should be glad of further information on this subject. A pine tree, which had been grown for some years in a pot, and its roots, in consequence, had formed spirals round the pot, has now reached the height of 15 ft., and the consequent swelling of the spirals has actually raised the collar of the tree six inches above the surface; a proof of the bad effects of keeping surface-rooted trees, like the pine and fir tribe, more than a year or two in pots. A double pomegranate, in a sheltered situation, is now covered with flowers; a circumstance which we do not always find when this tree is trained against a wall; because, in that case, the small short shoots or spurs, on the points of which the blossoms are produced, are often cut off.

Whitton Dean, the Seat of the late Charles Calvert, Esq. — Since we last visited this place, in 1828 (see Vol. V. p. 94.), a large dining-room has been added to one end of the mansion, and a corresponding drawingroom to the other. The distance between these two rooms is about 150 ft., and they are connected by a paved conservatory about 15 ft. broad; and sufficiently high for its roof to include the first-floor windows. This must, of course, have much deteriorated the value of the rooms lighted by these windows, and accordingly we were informed that they are now only used as ante-rooms, everything having been sacrificed to the two grand rooms for company. The place, being to let, is in a state of neglect.

Whitton Place. (See Vol. V. p. 94.) — We saw the towering silver cedars from the road, but did not attempt to gain admittance to take a nearer view. There are two other Whittons here, where we also observed, from the road, some very fine cedars, pinasters, Weymouth pines, larches, and other pines and firs of the last century.

Slough Nursery, Messrs. Brown. — This has been a nursery of high repute for many years; but we never before had an opportunity of examining it. It contains upwards of thirty acres, with a number of very neat green-houses and propagating pits. The main objects of culture seemed to be ornamental plants of the more choice kinds. Mr. Brown is also a florist, and has one of the best tulip beds in England; second only, we believe, to that of Mr. Groom. The soil is admirably adapted for nursery culture; and we do not believe it possible to grow things so well in the immediate neighbourhood of London as they are grown here. On the walls of the dwelling-house is one of the finest plants of Bignòn*ia* radìcans màjor we ever saw, now covered with bloom; and a very fine Magnòl*ia* grandiflòra. There is one of the most select collections of heartsease here in the neighbourhood of London; and the demand for this little plant is so great that it cannot be supplied. We saw a great many seedling phloxes, some of which are very fine. Immense quantities of *Petùnia* nyctaginiflòra var. grandiflòra and *P.* phœnícea are grown for their seeds. Magnòl*ia* Soulange*àna* grows vigorously, and flowers freely; and the tree is considered as decidedly more hardy than M. conspícua. There are hedges of Cydònia japónica which are covered with flowers the greater part of the winter and the whole of the spring; and Mr. Brown, jun., is of opinion that this plant will be found, in some respects, better adapted for hedges than the common hawthorn. The hedges of it in this nursery were quite impenetrable. Mr. Brown is celebrated for having raised two roses of the Bengal kind, viz., Brown's celestial and Brown's superb. They are both roses which grow with great vigour, and they are peculiarly susceptible of training as pyramids. There is here a large stock of that scarce rose, the yellow Noisette, obtained by grafting portions of shoots, containing only a single bud, on stocks of Brown's superb. This is an invention of one of the Messrs. Brown. The scion is not above an inch in length, and it is put on the stock, in the whip-grafting manner, close by the surface of the ground. The stock is of the wood of the former year, and the scion of the current year. Excellent and saleable plants are thus produced the very first season. There are two very complete collections of hollyhocks now in flower, one tall and the other dwarf. Among numerous things which we noted, but have not time to dilate on, were, that seeds of Fúchs*ia* globòsa produced plants quite different from the parent; that seeds of the *Datùra* odoràta, after being a year in a hot-bed without germinating, came up the following year in the open garden, when the mould of the hot-bed had been spread about as manure; an excellent collection of the dark-coloured nasturtium, said to have been introduced into England by Booth of Hamburgh; fine plants of Calandrínì*a* grandiflòra, beautifully in flower; and a number of seedling hybrid caprifoliums. On the whole, we were highly gratified with this nursery; and we intend, in future, to visit it frequently.

The Garden at the Crown Inn, at Slough. — As might be expected from the vicinity of Mr. Brown's nursery, this garden is well kept, and is in high order. Among the trees, we were pleased to find Magnòl*ia* conspícua; and among the flowers, Clárk*ia* and the new œnotheras. The gardens at the inns at Salt Hill, Maidenhead, and Henley may be held out as examples of inn gardens, to innkeepers in every part of the kingdom.

Stoke Place, Col. Vyse. — *July* 30. The surface is not much varied, but the situation is elevated; commanding the vale of Windsor, the towers of the castle, and St. Leonard's Hill. The house is a plain old English structure of brick, and we were informed that it can be traced back to the possession of one of the cooks of Queen Elizabeth. Its present possessor is the author of several important works on military tactics. Great improvements have lately been made in the grounds, by the present gardener, Mr. Patrick, who has enlarged the piece of water; and, with the excavated soil, has beautifully undulated the surrounding surface. In doing this, it became necessary to earth up elms and cedars, to the height of from 4 ft. to 8 ft., and it is quite remarkable how little the trees have suffered by this severe and dangerous operation. The red cedar trees, when thus treated, are found to root into the new soil, and to grow with fresh vigour. The elms spread their roots to a great distance, and as the earthing up does not extend far from their trunks, they may be considered as saved by that circumstance. There are some fine old Carolina poplars here, abounding with mistletoe, which Mr. Patrick propagates freely, by rubbing the berries into the crevices of the rough bark. Under the surface there is a substratum, never thicker than 2 ft., of what is here called ragstone, a conglomerate of flinty gravel, generally known as plumpudding stone, with which Mr. Patrick has judiciously bordered the water in some places, and formed rockwork, for plants, and for the issue of water in the form of springs, in others. The most ornamental parts of these grounds display rustic pedestals and plant-vases of very tasteful design, by Mr. Patrick, sketches of some of which he has promised to send us. There is a circular flower-garden here, surrounded by festooned trellis-work, with an open trellis bower in the centre, in Repton's manner; and a great many figures on the lawn (perhaps rather too many), designed by Mr. Patrick. Numerous green-house plants are sunk in the turf, as at Dropmore, and one of the finest plants for making a small flowery tuft on grass is found to be the *Petùnia* phœnícea. But by far the most interesting feature at Stoke Place is the kitchen-garden, formed about four years ago by Mr. Patrick. The soil is of a soapy loamy nature, particularly suitable for fruit trees; and the consequence is, that the trees now on the walls, though only in their fifth summer from being planted maiden plants, cover the walls (which are 12 ft. high), and are loaded with fruit. We could hardly have credited this, if we had not seen it; but this kitchen-garden is the talk of all the gardeners for many miles round. Even Mr. Oldacre, who is not hasty in giving an opinion, and who has had a great deal of experience, allows it to surpass anything of the kind he has ever seen. Mr. Patrick trenched all his fruit borders 4 ft. deep, without mixing any dung with the soil. This is his general practice; and he finds that by it he avoids over-luxuriant unripened shoots and the mildew. In consequence of his young wood being thus always well ripened, he never suffers from frosts in spring. For example, this year he has as many apricots on his trees as they can carry; while about London the blossom was generally destroyed. Mr. Patrick never protects blossom by canvass; but, if at any time he finds protection necessary, he merely employs netting suspended a few inches distant from the trees. It is not to be inferred, from all this, that Mr. Patrick never applies manure to his fruit borders, or round his fruit trees generally; but he always spreads it on the surface in the way of mulching, in order to encourage the fibrous roots to come up, rather than to go down. He disapproves of cropping the borders; and, though he had crops on some of them, they were very slight ones. Where these existed, he pointed out to us how much weaker the plants were opposite the centre of each tree, where a semicircular space indicated exhaustion by the trees' roots. This effect was more striking in Mr. Patrick's border than in any other that we ever saw, in consequence of the tree roots lying so near the surface. However, Mr. Patrick has promised us an account of his mode of forming this garden, and managing the trees in it; and with that we are sure our readers will be much instructed. We cannot help noticing a beautiful crop of large morello cherries on standard trees, trained like cones, and covered with nets. The morellos on the walls, and also the peaches, nectarines, and plums, were all thickly studded with fruit. The gardener's house is in the kitchen-garden, centrally situated, so as to overlook the whole from the bed-rooms, which are three in number, over a parlour, kitchen, and back kitchen. Certain cupboards and other fixtures belong to the house, and therefore cost the in-coming occupier nothing: but we would strongly recommend to such gardeners as have it in their power, to introduce the custom of having all the principal articles of furniture, such as tables, chairs, chests of drawers, bedsteads and bedding, considered as belonging to the house, to be taken to by every occupant, from his master, at a valuation, on entering, and taken from him in the same manner at leaving. No money need be required to be paid by the entering gardener till his leaving, when he should merely pay to his employer the difference between the first valuation and the last. A very little reflection will convince gardeners and their employers that this plan would be the best for all parties. There are two excellent mushroom houses here, with brick arched roofs, Mr. Patrick having found that roofs for mushroom houses of which wood forms a part soon rot. One of these houses, which is for winter use, is heated with hot water; the other, for summer use, is not heated at all. In the latter was a very abundant crop, on the surface of a covering of clayey loam, like grafting clay, the second spit being used in order to avoid worms. The clay is much thicker, moister, and harder beaten than is usual among mushroom-growers. Mushroom beds treated in this manner are a week or two longer in coming into bearing, but they last nearly double the time of beds made up in the common way. Several pits and houses are heated by hot water on the level system, by a single pipe going out near the top of an open boiler, and gradually declining in its course, so as to enter, on its return, at the bottom. The boiler is drawn together at the top to a diameter of eight or ten inches, which may be covered with a lid. Where the situation admits, this is one of the simplest and cheapest modes that we know of circulating hot water. In the front of the house there are some fine old cedars; one, with a thick, straight, high top, which bears only male blossoms, while all the others have short trunks, spread out into numerous arms, and produce seed-cones. Mr. Patrick has observed that cedars of the former habit are always the handsomest trees. The house has two distinct fronts; and from the entrance front, and the approach to it, no idea can be formed of the splendid view which is obtained from the lawn front. This, in our eyes, is one of the greatest beauties in the management of a country house and grounds. The walks were everywhere entirely to our taste, having the grass not more than an inch above the level of the gravel, and having the verges clipped, and not cut, so that every appearance of newness and workmanship was avoided. The family residing abroad, the place was not, in other respects, in very high keeping.

Opposite the entrance gates of this place there is a very neat Gothic cottage, having a highly kept lawn, beautifully varied with beds of flowers.

A large, plain, unarchitectural-looking house is building on a site called Stoke Cottage, at a short distance from Stoke Place. We mention it because we could not help being surprised at the want of architectural taste which it displayed, the more remarkable, because there appeared to be no want of workmen or of materials.

There are three classes of persons who build or plant: those who have taste enough to form their own designs; those who have little taste, but employ artists; and those who are without taste, and who concoct their plans with working mechanics, or some other persons in their employ. Three fourths of all the building and gardening done in the country is executed in this last manner; and hence it is that we despair of any very great improvement in matters of taste till a knowledge of its principles shall become generally diffused: till gardeners shall understand the principles of design in gardening, as well as they now do those of culture; till masons, bricklayers, and carpenters shall be as familiar with the composition of forms and lines, as they now are with the cutting and fitting of stones, or the trussing of roofs; and, finally, till masters and mistresses, and the whole mass of society, understand the general principles of composition, both in architecture and landscape.

Stoke Park, J. Penn, Esq. — This is a very interesting place on many accounts. Its present possessor is the grandson of the celebrated Penn, the founder of the state of Pennsylvania; and, had this gentleman's father not been a royalist, his income from his American possessions, we are informed, on the best authority, would now have exceeded six hundred thousand pounds a year. Stoke Park is also interesting, as being the scene of Gray's "Long Story," and of his celebrated "Elegy in a Country Churchyard." The yew trees immortalised by the poet are still in existence; but most of the "rugged elms" have been cut down. What we principally regretted, however, was the removal of nearly all the old Elizabethan mansion, which is said to have been one of great architectural beauty. Gray was buried in the churchyard; and near it, in the grounds, there is a plain massive pedestal, surmounted by a sarcophagus, erected to his memory. On the four sides of the pedestal are four appropriate extracts from his Elegy. There is also a monumental column in the park, to the memory of Sir Edward Coke, the celebrated lawyer. The grounds consist of a considerable extent of table land, from which an irregular winding slope descends to the south. This slope is very gentle; but it is still sufficient to give the walks along the brow, and especially the house, commanding views of Windsor Castle and the adjoining country. The grounds were first modernised under the direction of Mr. Repton, about the time when he and Mr. Main were laying out those of Chalfont House; but they have been since almost entirely changed by Mr. Penn, and his present most intelligent gardener and land steward, Mr. Osborne. The pleasure-ground is laid out in what may be called the classical style of the poet Mason; the forms of the masses of flowers and shrubs being generally circular or oval, and each scene distinguished by appropriate statues, or busts on therms, like those formerly in the flower-garden at Newnham Courtney. We hope at some future period to be able to give a plan and description of these grounds. The house in the Grecian style, and Doric, appears to a stranger remarkably well placed, though, like most others built about the same time, it wants an architectural basement and appendages. The summit is crowned with a cupola, which, from want of showing deep reveals to the openings, has a temporary-air, as though it were built of boards, and coloured in imitation of stone. The truth is, it was an after-thought, and these are always bad. The whole place was in good order.

(*To be continued.*)

Art. II. *A Reply to Mr. J. Main's Rejoinder* (p. 283.). By the Author of the "Domestic Gardener's Manual."

Sir,

I echo your words, and assure you that I, too, am much obliged by the kindness and good spirit evinced in your rejoinder (p. 283.) to my previous paper (p. 186.). It is calm yet powerful, argumentative, and eloquent. My reply shall be as simple and candid as I can possibly make it. Ours, Sir, is no controversy; it is merely an emulation, a mutual whetting of ability, a rousing of mental power to discover truth, and to present it to the view of others.

I do not think that I mistook the nature or drift of your questions; but, perhaps, I failed to reply to them in the exact manner which you anticipated. Be this as it may, I shall now at once meet your present first enquiry, without further delay.

"*Can the organic structure of plants be formed by, or out of, their juices?*" My safest answer, perhaps, would be given in the form of another question:— Is there a man living, will that man ever exist, who can distinctly point out, and clearly show, *what the process of assimilation is?* I greatly fear that there are points which the human intellect never could, never will, be able to grapple with. All our *knowledge*, so styled, is, I am strongly inclined to believe, but little more than the just appropriation of certain conventional terms. This I shall shortly attempt to exemplify; but, previously, I must observe that, although I cannot by any possibility prove that the several components of plants or of animals are formed, produced, or generated, by the juices of those plants or animals; yet I deem it to be equally impossible for you to afford demonstration that they *are not*, *cannot be*, so formed. I believe, whatever may heretofore have been your opinion to the contrary, that our views of creation or formation, and of developement and accretion, are by no means widely dissimilar: in proof of this, I beg to refer you to the little article on spur pruning, in p. 317., particularly to the last part of that article in p. 319. Therein you may perceive that I draw a complete distinction between creation and stimulation; for I observe that the electrical currents stimulate or excite the few remaining buds of the shortened shoot; and produce new developements from *embryoes*, *preorganised*, and *existing* in those shoots. It is my earnest desire to avoid any enquiry into first or creative causes. In so doing, we plunge beyond our depth, are bewildered and confused: I must content myself, therefore, with observing, that, in all our researches, we ought to allow that nothing is impossible. That Power which started an organised being into existence might as readily provide for the conversion of aliment into fresh parts or organs, as decree the original construction of certain vessels of nutrition and supply. He might as well ordain that, by the operation of certain stimuli, water should be converted into fibre, cell, or tube, as that a few of these organs only should exist, or at least be discernible, in the infant state of the being's existence. I feel no doubt that you will go with me so far; and now, then, having placed ourselves upon friendly ground, permit me to direct your attention towards two very important subjects for reflection, which, though I by no means assert that they demonstrate the conversion of aliment into vegetable organ, yet, I think, go very far towards evincing that the phenomenon is by no means impossible.

If you refer to Keith's *Physiological Botany*, vol. ii. p. 378. (edit. of 1816), you will perceive the author's attempt to demonstrate the nature of the change in the cherry induced by impregnation. In the year 1830, I perused his article repeatedly: I did more; and, calling in the assistance of the quick discerning eye of one of the young botanists of my family, we undertook a complete detail of experiments upon the fructification of the cherry, by means of a powerful and excellent microscope.

Permit me, before I proceed, to state that herein, as in every recorded fact, it has been my fate to meet with disappointment. I never in one instance have found that the natural subject discovered those parts or proportions that are figured in plates, or detailed in description. There is some over-colouring, some mental illusion, some self-imagining, that invariably throws one back upon one's own resources; at least, I, through life, have found it so; — have not you? These uncertainties lead to great perplexity, they sap authority, and tend to engender the mental feeling that "nothing is, but what is not."

Not to digress farther: on the 7th of April, 1830, we opened the first-formed cherry, and found it to correspond pretty closely with that described by Keith, May 4.; "internally" (say my notes), the hollow space showed the stone and kernel, or the embryo of both, like a transparent little pea: the substance was totally unorganised; it appeared to be a mass of simple jelly. We pursued our investigations almost daily: still, nothing occurred of any material moment. Keith's detail refers from the 4th to the 8th, 12th, 16th of May; then he adds, "the tubes and spiral vessels forming the umbilical cord, and conducting the sap from the fruit-stalk to the nucleus, were seen, by the assistance of a microscope, upon the longitudinal section of the ovary." My second note is dated April 23. "In sixteen days the nucleus has not increased to any great extent; from it a greenish yellow skin, or testa, was readily detached, leaving the gum inside, a white, tough, semitransparent, oval mass, homogeneous in substance, and otherwise unorganised. No connection appears to exist with the pericarp, nor is any umbilical cord discernible: it (the nucleus) detached itself with the utmost facility." I shall not pursue the investigation farther than to remark, that, on the 17th May, my examination gave evidence of the existence of an embryo, and so far corresponded with Keith's observation under the date of June 4.

My sincere object is, not to point out the progress of the seed of a cherry, or of any other plant, from its first visible formation to its state of maturity; but, to evince that the seed of a plant may, and does, afford ample evidence, proof positive, that if, *de facto*, *bonâ fide*, it contain within itself the sum total, the whole, of the future tree; that is to say, if it comprise all the vessels, cells, tubes, leaves, flowers, and fruits of that tree, whatever may be its ultimate developements and dimensions; it must contain and comprise these great, these vast dimensions, these products *in perpetuo*, all within a vesicle; a mere pin's point of a fluid, as simple, as bland, to all appearance, as that of a dewdrop.

———"Can such things be,
And overcome us like a summer's cloud,
Without our special wonder?"

Yet such things are, must be, if that primary atom comprised within the first-formed vesicle of a cherry stone, contain each and every minute iota of the future developements of the full-grown cherry tree, and that, perhaps, for the period of one hundred and fifty successive years. I have adduced the example of the incipient seed of the cherry, in order to prove that a simple drop of bland fluid, which does not afford evidence of organisation, even under the most powerful of our microscopic glasses, is the sole discernible rudiment of a future tree. You, Sir, perhaps believe, and may affirm, that, in that minute vesicle, all the future organs of the tree are existent, as completely so as in their future condition of full and complete developement, but in a state of such extreme minuteness as not, by any human power, to be discerned nor detected. Be it so; I cannot deny the fact, nor do I wish to do so: I only contend that the conversion of nutritive fluids into organic structure does not, to my faculty, tend to impugn the doctrine of rudimental preexistence in the slightest degree. That Power, I repeat, which could decree the existence of a nucleus or rudiment, could not only provide for its support and future developements, but for the conversion of the nutritive matter (inhaled from without) into the very substance and organisation of the future plant. Infinite Wisdom could not err, whatever might be the nature or construction of the being acted upon, or of the machinery to be employed.

One more proof of the convertibility of the vegetable juices into the positive substance of organised being is, I think, offered in the *vis medicatrix naturæ*, that healing power of nature by which wounds are closed and covered. Let the limb of a young tree be amputated, let a narrow ring of bark be taken off completely around the stem or branch of a tree, and you need not be informed that, in a certain period of time, the wounded surfaces will, in both cases, be healed and covered. The analogy will hold good with respect to the animal structure: wounds will heal, cavities produced by violence will be filled up by healthy granulations, a new cuticle will completely cover the surface; and the vital fluids will circulate through the parts thus recently produced, with freedom and precision. Did Nature, when she formed the nucleus, that something which you style "rudimental preexistence,"—did she, I enquire, include therein, prospectively, the matter, substance, tubes, cells, or fibres, all and every thing that would be required wherewith to heal adventitious wounds?

Do you not perceive, my good Sir, that our enquiries are leading us out of our depth; that we are getting into a fathomless abyss? I think we had better stop short, and avow our ignorance; for, verily, all that we have been writing about must be referred to an energy of the vital principle, an agent whose nature and operations, it never yet has been, and most probably never will be, given to man to appreciate and understand. I quit the subject with this conviction, and I trust it may not again be agitated.

I now finally come to your second position or point of enquiry. You assert that, in writing of the elements of vegetables, I mean to inculcate that "vegetable food (the constituents of water, that is, oxygen, hydrogen, and carbon), in conjunction with the vital energies and chemico-electrical influences of the earth and atmosphere, goes directly to form new organs."

There is a little misapprehension in this statement, particularly in your supposing that I have stated carbon to be a constituent of water; but this is of no consequence. I maintain solely that organisation may be formed, as well as developed, without confusion or anarchy, provided the nature primarily bestowed upon the animal or vegetable be such as to include such new organisation as a necessary consequence; but I assert nothing, because I know nothing.

My object is not to revert to a dismissed argument; but simply to explain the meaning of a conjecture hazarded at the commencement of this paper; namely, that "knowledge is little more than a just appropriation of conventional terms."

Those vegetable physiologists who are chemists also, are too apt to use the terms of operative or scientific chemistry, when they attempt to describe what they designate the components, or elements, of the vegetable structure. In fact, such use of conventional terms can scarcely at times be avoided; but, subsequently to the appearance of my *Domestic Gardener's Manual*, I have felt the urgent necessity of duly explaining our precise meaning when we apply such terms. I therefore had prepared an explanatory note, which, on reperusal, I find to be so "germane" to my present purpose, that I cannot avoid quoting it almost verbatim, as it not only will elucidate the meaning of the observation referred to, but clearly discover the bearing of my own reflections, months before I had the pleasure of perusing your sentiments.

As it is my chief object to elicit truth, and to guard against any erroneous conclusion that may be drawn from the results of the chemical analysis of vegetable bodies, I must observe, that, although such results afford oxygen, hydrogen, and carbon, invariably; the bodies operated upon, while in possession of the vital principle, do not contain the actual substances usually deemed to be their elements. Roots, branches, leaves, and fruits, living and growing, are not mere masses of oxygen, hydrogen, and carbon. No: they are, in fact, what they seem to be, organised beings of a wonderful conformation, endowed with life, and with the powers of assimilation and nutrition. No effort of the analytic chemist could either restore the vital principle, or remodel the structure in which it had once produced such astonishing changes. We know that dead vegetable substances are resolvable into divers elementary products; but there we stop: our ignorance constrains us to submit to the customary use of terms; and we are content with asserting that oxygen, hydrogen, and carbon form the basis of most bodies. It would, however, be more wise to assert nothing, and to rest satisfied with the discovery that vegetable matter is reducible by analysis to certain substances. These substances ought, in fact, to be considered the products of electro-chemical action upon inert vegetable matter simply, and not by any means as constituting the absolute primary components of the vegetable being itself, when actuated by the vital principle. "Vegetable chemistry," "chemical action of vegetables," "vegetable elements," — these, and other technical expressions, are, I conceive, neither more nor less than conventional terms, by which we express, as well as we are able, — 1st, The agency of the vital principle in effecting changes during the life of the plant; and, 2dly, The results of this chemical analysis on decomposable vegetable remains after the extinction of life.

With much respect,
I am, Sir, your obedient servant,
The Author of *The Domestic Gardener's Manual.*

August 6. 1833.

Art. III. *A Consideration of the Relations of Light to the perfect Display of the Beauties of Form and of Hue in Plants and in Flowers.* By Anon.

The following observations on the subject of light, more especially with reference to the kind of light best adapted to the displaying of flowers, have originated in the strikingly different effect produced by two exhibitions of plants and flowers which I lately saw: one collection, exhibited in a room generally supposed to be admirably calculated for such a purpose, received no light but from the roof or dome, and that softened by shades; the other, shown in a large, merely whitewashed room, into which the broad glare of daylight is admitted by several windows along the sides of the room. I have heard many remark how much more brilliant, striking, and fresh the plants in the latter appeared, although they could not suppose they were in reality more so than the plants in the other; but I have not heard any one attempt to account for this difference. I think (if I may be allowed such a privilege) that the very superior effect of the plants in the latter place arose from their receiving the light in a simple inartificial manner. I have never considered the subject before with regard to flowers, but, from former observations on the effect produced on different objects by a descending light, I am of opinion that all kinds of forms should receive the light as nearly on a level with themselves as convenient. The most striking proof of the truth of this notion may be educed from the fact, that, since our theatres have been lighted by gas from the ceiling, the houses have a much less brilliant appearance, and the shadows thrown on the countenances of the audience detract very much from the beauty and from the expression of the whole dress circles. The same objection extends to sculpture; which fact, it is probable, has been generally ascertained, as I have seldom seen it exhibited in such a light. For the public display of paintings, a subdued light from above is for many reasons, perhaps, the best; but for private collections, where no taste or interest but the proprietor's has to be consulted, a gallery or saloon proportioned to the size and number of the pictures, where the light is admitted horizontally, and veiled or not at pleasure, has many advantages. The effects of light and shade produced by the receding mists of morning, the gay and sunny rays of noon, or the sobered hue of twilight, give a variety and reality to the objects, which is seldom observed in the usual mode of exhibition. Still, painting and other works of art, in which will always be found more or less of imperfection, may occasionally derive great advantages from the mode of lighting usually adopted. Architecture, however perfect, never looks so grand and beautiful as in twilight or moonlight. On the other hand, no light is too strong for a fine landscape, or for flowers, the loveliest productions of nature: they require no artificial means either to enhance their beauties, or veil their imperfections. I do not know if I have made myself clear; but I mean to imply, generally, that the beauties of nature should be exhibited without any artificial means; works of art according to their form, &c., and the particular object the artist has in view.

ANON.

We agree entirely with the general sentiments expressed by our correspondent, viz., that brilliant objects like flowers should be displayed under the full influence of bright light, received not only from above, but from the sides; paintings, on the contrary, are seen to the greatest advantage where the light proceeds chiefly from above, as any one may observe by looking at the pictures in a room where the windows are down to the ground. As our correspondent is evidently a man of cultivated taste, we should wish to hear further from him on subjects of this kind.— *Cond.*

Art. IV. *Hints to Gardeners, incentive to their educating themselves in a Knowledge of English Grammar, and of other Subjects of essentially useful Knowledge.* By Mr. William Taylor.

Sir,

The following remarks are neither for the information, edification, nor exhortation of any of the writers in this Magazine; but of those of its readers only (and it is to be hoped they are not very numerous) who use such phrases as, "I seed them plants, and axt their names." Some twenty years ago a class of gardeners, of different orders as to intellect, set out in quest of their business, but with a very limited stock of education, viz., a smattering of reading, writing, and arithmetic. They perhaps used all the means in their power to gain an empirical knowledge of the business, but neglected to improve themselves in education. Hence we not unfrequently hear the above and similar ludicrously incorrect language used by naturally clever men in respectable situations: yes, by men who have read more of the fashionable novels of the day, and the like fascinating books, than they have of books on horticulture and the sciences connected therewith. They will approve, or rather condemn, sciences, creeds, and systems, " and all them sort of things," gratis; while, at the same time, you can easily discover, for it cannot be hidden, that they have not so much as read an English grammar.

The mistaken notions that " English grammar is not worth a dog's dance without Latin," that it cannot be acquired without a teacher, and that chance speaking and writing are quite sufficient, have prevented many a young man from self-acquiring a knowledge of it. My advice to them is simply this, — give over reading of novels, and if you have been foolish enough (I speak from a little experience) to purchase any books that will not bear a second reading, sell them, and buy Lennie's *Grammar and Key* and Walker's *Pronouncing Dictionary*, and give a part of your after-hours to the studying of them; say an hour at night, less or more, according to circumstances; and, if you have any taste or inclination to improve, they will be found much more beneficial, and afford more real satisfaction, than any time-passing amusement whatever. A grown-up person, not past the meridian of life, of no great grasp of mind, with a common share of common sense, and the *Key* for a teacher, may attain a tolerable knowledge of the language in less time than it takes to grow a pine-apple. However, he must not expect to be able to communicate his ideas in such "laconic eloquence," and with so much perspicuity and freedom from ambiguity, as those with A. M., &c., attached to their names, who have, as it were, served a time to learning languages.

But to return: you will begin at the beginning of the *Grammar*, and commit to memory all the larger print; read the notes carefully, and when you are at a loss turn to the respective place of the *Key*. You will find no difficulty until you come to the verbs, which are the driest part of the concern, and, like vulgar fractions, easily learned and soon forgotten: nevertheless, they ought to be learned and understood, otherwise you will find them plaguy things when you get to syntax, because they must agree with their neighbours, &c. I think myself better at pruning, grafting, or measuring a tree than at conjugating verbs, because I learned, or rather began to learn, the former seven years before the latter. As pronunciation is a part of grammar, it should be studied along with it. Walker's *Pronouncing Dictionary*, if not the best, is one of the best; and although its "principles" are too long to be got by heart, they should be often perused, the doing of which will enable you to remember some of the shorter rules, as, "*k* is always silent in the same syllable before *n*," &c. The key, or sounds of the vowels, which are along the top of each page, should be committed to memory, not forgetting to pay particular attention to the rules for accentuation, and to those to be observed by the people who take for their emblem the thistle, the shamrock, and even the rose.

Trifling as this subject may appear to some, the greatest of men have learned it, and are guided by its rules; and without it we cannot distinguish good from bad phrases, nor proper from improper pronunciation. Whatever we profess to know, and however well bred we may wish to be, if we cannot express ourselves in any better terms than an illiterate labourer or stable-boy, we are liable to be misunderstood, and are always disagreeable to our superiors in education and rank of life. And, above all, let us endeavour to keep pace with the improvements and fashions of the day in all things connected with our calling, else we are sure to be left behind, and of course laid aside like an old tailor out of fashion. Then there are botany, mensuration, book-keeping, chemistry, geography, drawing, history, and all useful, yea, more, indispensable; for we must "weigh opinions," and give reasons for all we do, nowadays. Not that we are obliged to reply to every one's "Why?" which is now the order of the day: but that is no good reason why we should not be capable of answering those who have a right to ask. Time was when it was thought no person had a right to ask another any thing of his business, because it was his property, he had paid for it: some think so still, and are possessed of some grand secrets that they would not reveal "for a world of potatoes." Well, they should read (but they are too knowing to do that) the *Outlines of Horticulture* and the *Botanic Annual*, which will convince them that others know something too. When I get time, I shall send you some hints on the utility of mensuration to gardeners; but I am afraid you will think the wind blows too keen from the north. I am, Sir, yours, &c.

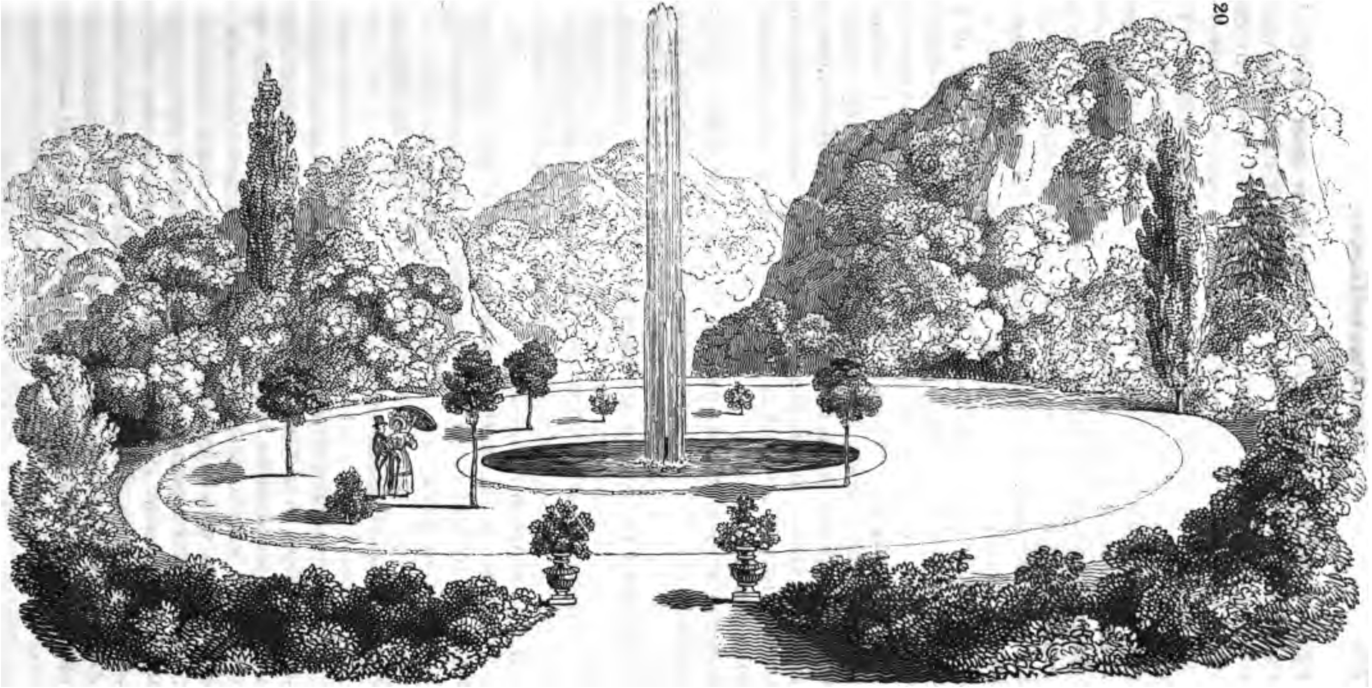
W. TAYLOR.

Thainston, Aberdeenshire, July, 1833.

ART. V. *On Fountains in Gardens; with a Design* (*fig.* 120.). By W. MASON, Jun. Esq.

Sir,

I AM truly happy to see, in your Magazine (p. 208.), that the subject of those finishing ornaments of the gardenesque, fountains, are brought forward for discussion. I have often felt mortified, in my walks through our London squares, to think that opulent English peers and merchants should so often visit and admire foreign towns, and then return home without attempting to rival the beauties they have witnessed in them. What is the finish wanted in Grosvenor Square but a magnificent fountain, that, by the power of steam, should throw its lofty waters 60 ft. into the air; and, by the motion thus imparted to the atmosphere, the brilliant glistening of its jet, and the composing murmur of its continuous fall, increase the fragrance of the mignonette and other sweet-smelling plants, and, in various ways, add a most desirable enjoyment to that magnificent area. A fountain



rate, levied during the summer months upon the distinguished and rich individuals inhabiting this square, would scarcely be felt. The same observation will apply to other squares, the size or grandeur of the fountains varying, of course, with the purses of the surrounding occupants. The whole might be done by contract; and the smoky air of the city be somewhat relieved in the vicinity of each fountain. Had Mr. Nash been an architect equal to such ideas, we should have seen something of the kind during the last reign: but, though he has done much for West London, his knowledge of the sources of the sublime and beautiful seems to be contracted.

When I first visited Mr. Rowley, the ingenuity of his fountains could not fail to please, as much as their diminutiveness provoked a smile; some of them giving one more the idea of a magnificent squirt than of a fountain. I ventured to recommend his crossing the Channel, to see the *grandes eaux* at Versailles on a fête day; and thought that he would then, peradventure, incite his employers to better things; and that a demand for simple and grand fountains might be the consequence.

I may appear fastidious; but I cannot like the air of a fountain encompassed by a plain walled reservoir, as in the sketches of the fountains, figs. 68. and 69. (p. 215, 216.) Your friend the Young Architect will, I am sure, on considering the point maturely, yield to my flat stone coped reservoir of the design sent herewith (*fig*. 120.); which coping, in fountains of a rich and sculptured character, might, by diversity of form, be made to harmonise.

I intend, in my next communication, if this meets with approval, to undertake a methodised arrangement of these garden ornaments. I am, Sir, yours, &c.

William Mason, Jun.

Nacton, Norfolk, June, 1833.

Such a methodised arrangement as that mentioned by our correspondent would be a valuable addition to garden literature; and we shall be extremely obliged to him for it. We have lately seen some of the most splendid flower-gardens in England, to which fountains that had the water raised to a great height by steam or otherwise would be most appropriate ornaments. As an example near town, we may refer to Lady Amherst's flower-gardens, at Montreal, near Seven Oaks, in Kent, which garden we visited in the course of a seven weeks' tour, completed yesterday (Sept. 16.). — *Cond.*

Art. VI. *Notice of Saul's Garden Chair, with Remarks on the Principles of Design with reference to Chairs of this Kind.* By Mr. M. Saul and the Conductor.

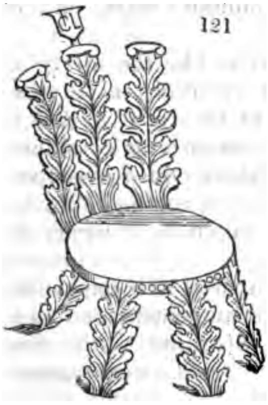
Sir,

You will receive with this a chair (*fig.* 121.), for which I hope you will be able to find a spare corner in your garden. The seat is of wood, and the back and feet are of iron, cast in the form of leaves, of the acanthus, thistle, or artichoke kind. The whole chair is painted of a deep green. These chairs are sold at 16*s.* each. They may be made with a more ornamented back, when they will cost a little more; or with one foot less, when they will cost not quite so much.

I am, Sir, yours, &c.

Lancaster, June 29. 1833. M. Saul.

We have placed this chair under a tree in our garden; and we have figured it, both for the sake of obliging our ingenious and indefatigable correspondent, Mr. Saul, and because we think we can make some observations on it which may be useful to our readers. We enter our protest against this chair, in point of taste, for the following reasons: — The seat appears to be supported by leaves, not springing from a root, as leaves generally do, but standing separately on the ground; or coming out of the ground separately, without any appearance of stems, roots, or buds, which is never the case in nature. The back is formed of three leaves of the same description, which, comparatively speaking, seem to arise naturally enough out of the seat, as the leaves of a calyx do from the base of a flower. Our principal objection, therefore, is to the manner in which the seat is supported by single and unconnected leaves. When nature is imitated by art, there ought always to be, in the object produced, at least a semblance of truth; for, though no leaves of the kind shown, however placed, could actually support a seat of this kind; yet, if they had been made to spring from a root or stem underneath the seat, and spread out under it on every side, like the leaves of the capital of a column, they would have had much more the appearance of communicating support. Still, as a garden chair, we should not have approved of the design; because, in a garden or pleasure ground, where all around is



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leaves and green, there is a degree of dullness and monotony in introducing leaves and green as objects of art. We would rather have had some architectural or artificial form, and certainly would have had that form of any colour rather than green, unless, perhaps, blue. A stone colour would unquestionably contrast best with those of vegetation and the sky. A garden seat composed of natural forms painted in their natural colours, we consider to rank about the same scale in art as a model of the human figure in coloured waxwork: both mimic nature, instead of imitating her. To those of our readers who wish to pursue this subject, and who understand French, we recommend the *Essai sur l' Imitation dans les Beaux Arts*, of Quatremère de Quincy. There is no corresponding work in the English language; but in our *Encyclopædia of Architecture* we have discussed the object of imitation, as far as that art is concerned; and in our forthcoming *Encyclopædia of Landscape-Gardening* we shall have an opportunity of further considering and applying the subject. We shall only add, at present, that it is one of so much importance in all the arts of taste, that no designer, whether of houses or gardens, or even of garden furniture, ought to neglect the study of it.

The above was put in type in July, to the end of being published in the Number for August, but want of room prevented the admission of it. We, however, submitted to Mr. Saul, shortly after receiving his present and communication, the amount of the above strictures on the subject. Mr. Saul has since, in a letter dated August 4. 1833, informed us of his having devised another chair, in which the seat is supported by legs cast to the pattern of a vine branch, in full bearing of leaves and fruit, and with the depending clusters of fruit made to be removable at pleasure, so as to have them either green, red, or black, according to the time of the year. The leaves for the back remain the same as those in *fig.* 121., except that each of the two outside ones is tipped with a sprig of vine bearing a couple of leaves, and the central leaf of the back is surmounted by some floral device. Mr. Saul has added: — "I have raised a bank about 15 in. high, so that I can put plants of different kinds in flower in pots under the seat, without their appearing to be in pots, and which have a pleasing effect behind the leaves and fruit of the vine branches. Behind the chair are taller plants, to show themselves in and relieve the intervals of the leaves of the chair's back. On each side of the bank I have placed a number of natural stones, which I have collected from different parts of the neighbourhood, and these have a good effect." We like this design still less than the other. — *Cond.*

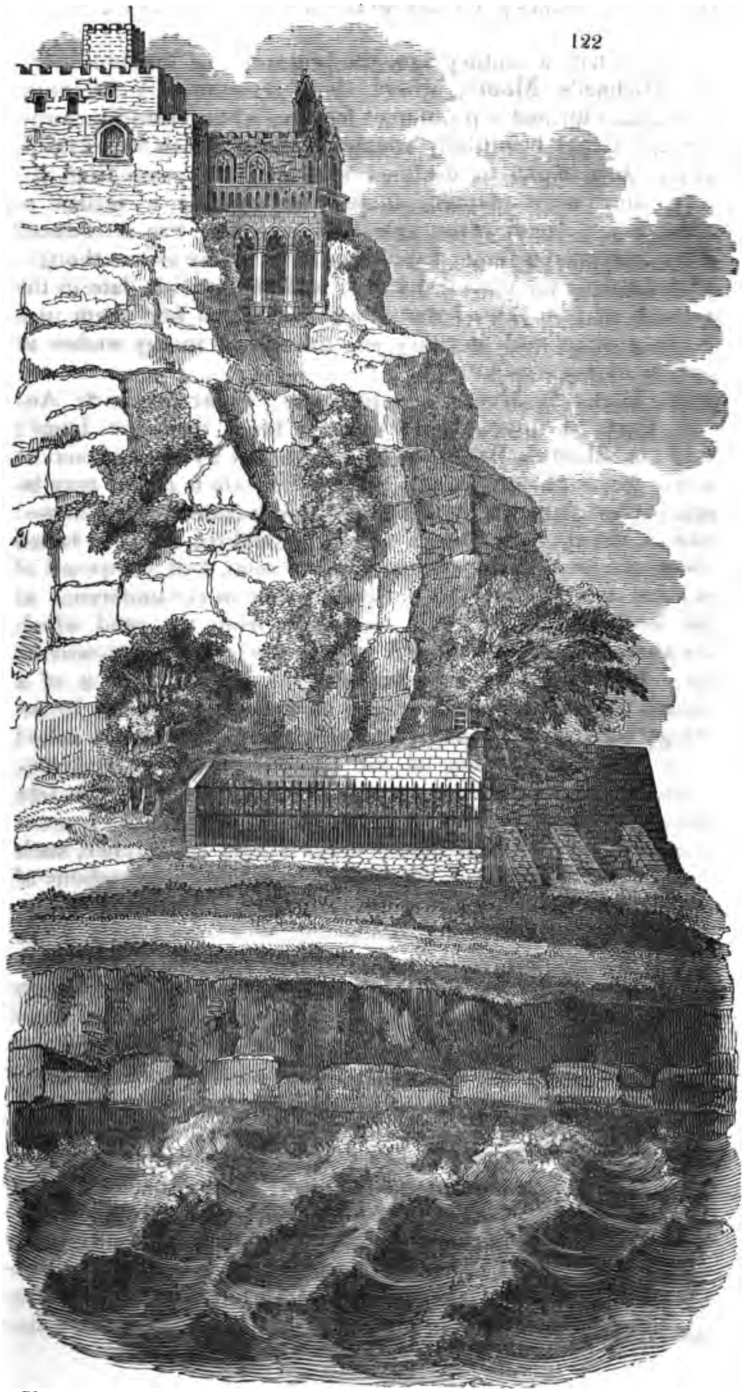
ART. VII. *The Fitness of the Evergreen Oak* (Quércus I'lex) *for planting near the Sea Coast, in Groups, for Ornament; and a Comparison of its Fitness with that of the Cluster Pine* (Pìnus Pinâster), *for a Nurse to Plantations on the Sea Coast: followed by a Description of St. Michael's Mount, near the Land's End, Cornwall.* By MR. T. RUTGER.

Sir,

PERMIT me to recommend the Quércus *I*'lex, or evergreen oak, to the notice of your readers, as valuable for planting near the sea coast, either in groups for ornament, or as a nurse for the plantation. In the latter point of view, perhaps, the pinaster (*P*ìnus *P*inâster) may be considered by some as preferable, being more rapid in its growth; and for deep plantations I should be inclined to favour it, not only on account of its being the fastest grower, but because a large supply can be more easily obtained, at a much less expense; but as a breastwork, for either deep plantations or belts, I should favour the ilex, as being by far more ornamental, as well as lasting, and for having the advantage, also, of feathering down, and forming a thick mass of foliage, nearly impenetrable to the eye, which is of considerable advantage in belt planting, and in which the pinaster fails in its advanced state of growth. With regard to the properties of the ilex, it shares an equal, if not a greater, degree of indifference to the sea air with the pinaster, which is fully proved in the west of Cornwall in numerous instances. My attention was first drawn to this, some years since, by observing a broken row of ilexes, of above eighty years' growth, at Clowance, the seat of Sir John St. Aubyn, Bart., where they now stand, and constitute a valuable protection to the plantation in the rear. About the grounds there are also several handsome groups of them, of about forty years' standing, which are much admired by visiters, and form a pleasing feature among other evergreens, and trees of more stately growth. The pinaster is well known in Cornwall, and much sought after by gentlemen who are forming new plantations, to plant principally as nurses to the more valuable kinds of trees. When they are planted to stand by themselves, either in groups, belts, or large plantations, unless they are kept properly thinned during their growth, premature old age ensues, and they make but a sorry appearance at the end of forty or fifty years. Cases of this kind have occurred where a few ilexes were sprinkled among the pinasters, the latter of which are gone to decay, leaving the former healthy and vigorous, and promising fair to be of long standing.

About half a century ago, the pinaster was introduced on St. Michael's Mount, where they grew rapidly for some years, and formed a prominent feature, when viewed at a distance, on that beautifully romantic spot; but in about thirty years they began to decline; and, at forty years from the time they were planted, there was scarcely a vestige of them left. About three years ago, the ilex was introduced there in several groups, disposed in such a way as was thought advantageous for embellishment; and on my visit, late in the autumn of last year, I was much pleased to find them in a thriving state, and in every way answering to my wishes as well as expectations.

St. Michael's Mount, the property of Sir John St. Aubyn, Bart., is situate about thirteen miles from the Land's End, in Mount's Bay, and is surrounded by the sea six or seven hours out of twelve. When the tide is out, it may be approached from the small town of Marazion, over a causeway of about a quarter of a mile in length, which is raised above the level of the common bed of sand, and composed of pebbles and shingle. It is about a mile in circumference at the base, and about 250 ft. in height from the sand which lies around it to the summit of the tower which crowns its tip. The rock is chiefly composed of granite, and is of a conical figure, which gradually diminishes from its broad craggy base to its summit, on which stands what is called "the castle," consisting of the remains of the ancient monastic buildings, which were considerably altered by the late proprietor, and have been greatly embellished by the present possessor. The whole forms a pyramidal appearance, such as to excite in the mind, the instant it is beheld, sensations of the greatest veneration and astonishment. (*fig.* 122.) There are many rocks of gigantic dimensions, which are totally, while others appear but partially, separated from the tremendous mass on which the buildings rest. When viewed from different directions, the whole presents a diversity of aspects: in some places nearly perpendicular; in others, of gentle acclivity; and where there are no rocks, it is covered with verdure, which increases on the northern and eastern sides down to its base, so as, in one part, to nearly form a plain. The part over which the visiter has to walk, until he approaches the rock, is of gentle ascent. When he begins to ascend more rapidly, it is by a rocky winding path on the north side, having huge pendent rocks on his left, and precipices on his right. Farther on, there are two gun batteries on the right; on leaving which, he winds to the left, and ascends a rough flight of broken steps, some natural and others arti-



ficial, which brings him up to the entrance of the building, within which he will find a suite of apartments containing numerous relics of antiquity, and a chapel fitted up in a neat style of elegance, with a magnificent organ, all of which will be found to far exceed his expectations. On reaching the top of the tower, an immense prospect opens to view, and is perhaps as striking as any that can appear to " mortal eye." " The immense extent of sea," says Dr. Maton, " raises the most sublime emotions: the waves of the British, Irish, and Atlantic seas all roll within compass of the sight," while the eye is released from the uniform, though imposing, grandeur of so boundless an horizon, by wandering on the north and west over a landscape which Claude himself might have transfused on his canvass. At the base, on the northern side, is a small town, which comprises about 250 inhabitants; and also a commodious pier, which will contain upwards of fifty sail of small vessels. On the south side, fully exposed to the wide expanse of the ocean, is a small garden (*fig.* 123.), in three compartments, raised one above another; above which all is rock, and nearly perpendicular all the distance up to the base of the buildings, through the interstices of which the ivy is seen to make its way, covering in patches a great part of it. In this garden several sorts of fruits have been matured, such as the peach, nectarine, plum, &c., with strawberries of the most delicious flavour; and there is now a myrtle tree in it of many years' standing. Other half-tender exotics might, no doubt, be introduced here with safety, particularly such as have no objection to saline particles falling on them, as this must frequently occur in stormy weather. On the western side the garden is protected by some stunted Dutch or cork-barked elms (*U'lmus suberòsa*); and on the east by a few elms and some fine

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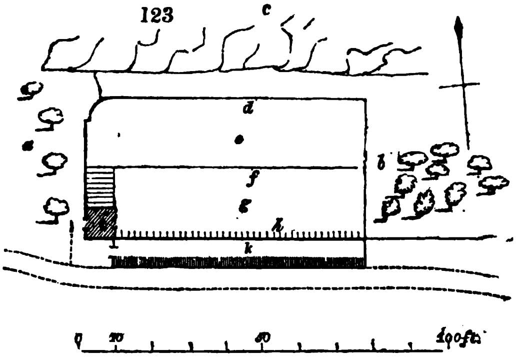


a, Plantation of elm trees.
b, Plantation, consisting of elms and tamarisks.
c, Rock.
d, Brick wall.
e, Strawberry garden.
f, Dwarf wall, not shown in the elevation (*fig.* 122.), to avoid confusion.
g, Flower-garden.
h, Wall and railing.
i, Tool-house or summer-house.
k, Flower-garden.

French tamarisks (*T*ámarix gállica), the trunks of which are of a large size. There are also a few cork-barked elms on the north side, near the summit of the hill, at the base of the buildings. The elder (*S*ambùcus nìgra) is likewise interspersed here in great abundance, and, with the others, gives a pleasing feature to this side of the mount during the summer season.

To the botanist the Mount will not be altogether barren of amusement and study; as, among the many large and scattering rocks down towards its base (some of which are partly embedded in the soil, while others lie on its surface), the variety of plants is considerable, among which are to be seen the *A*splènium marìnum, *St*âtice Armèria, *I*'nula *He*lèn*ium*, *S*enècio Jacobæ`*a*, &c., with a profusion of *B*oràgo officinàlis, wild hyacinths, and narcissuses, which, during their season of flowering, give a pleasing variety to the whole.

Such as feel disposed to become better acquainted with this venerable monument of antiquity may be referred to the *Guide to the Mount's Bay and the Land's End, by a Physician*, published in 1824, in which the author gives its natural, ecclesiastical, and military history; also its geology, and the minerals with which it abounds. The reader will also find a description of the climate in Mount's Bay, with a pretty considerable list of acclimatised exotics; also a list of indigenous plants of western Cornwall, with many other particulars interesting to both the gardener and botanist, as well as to those whose scientific researches are of another description.

I shall close this article in the language of a more recent writer, who says, that, " to the mineralogist, the antiquary, the historian, the poet, and the painter, St. Michael's Mount will ever be an object of particular interest and real satisfaction." I am, Sir, yours &c.

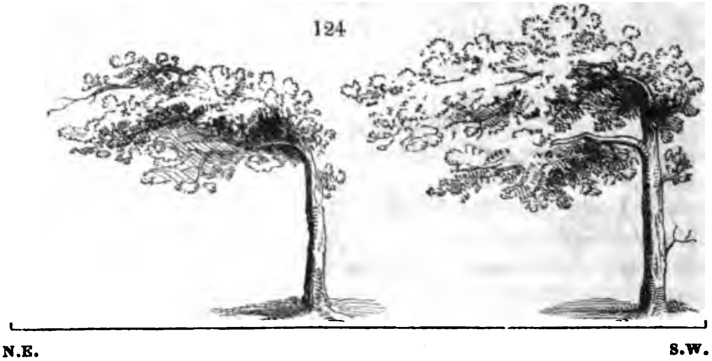
T. Rutger.

Shortgrove, Essex, Jan. 1833.

Art. VIII. *A Notice of the Effects of Wind on Trees growing on the Coast near Poole, Dorsetshire.* By the Rev. W. B. Clarke.

Sir,

The prevailing winds on the coast of Dorsetshire are from the south-west. The effects of these winds upon vegetation are remarkably evident in the direction of the branches of the trees which have been exposed in unsheltered situations. I send you herewith profiles of six oaks (*figs.* 124, 125, 126.), selected from nearly two dozen standing together, on the



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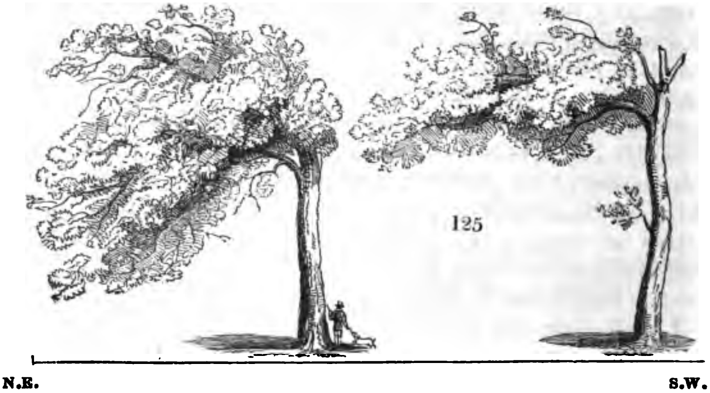
boundary of Canford Heath, near Wimborne, and on the estate of the Hon. W. F. S. Ponsonby, M. P. I am told



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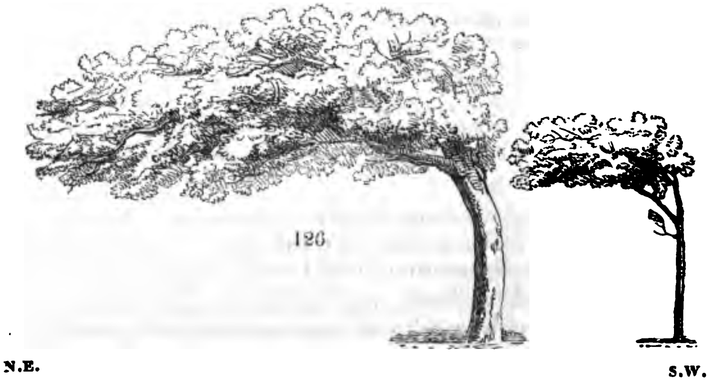
that there are still more striking instances of such influence near Lymington, in Hampshire, though I do not remember



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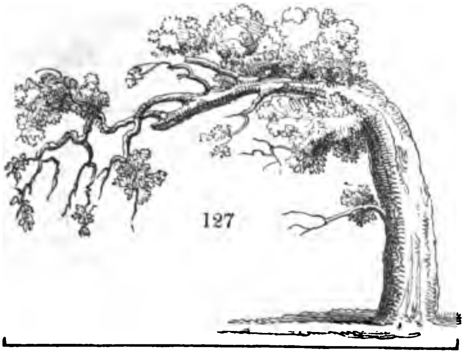
to have observed them. The curious old oak tree in the cliff above Hiley's Marsh, in this parish, has, I believe, been noticed elsewhere: of this, however, I send you also a sketch (*fig.* 127.), drawn in a heavy gale from the south-west; so pardon it. There are also other trees in low situations, exposed to the winds on the shore of Poole Harbour, which have been similarly affected: but among the oaks at Canford there grow two holly trees the branches of which are wanting to the north-east, and to the south-west are full and strong. I know nowhere such examples of the influence of the wind as the trees in the high heath lands in this vicinity exhibit. The direction of the branches of the trees out of which these sketches (*figs.* 124. to 126.) have been selected is, as taken by compass, from south-west to north-east, the foliage being in the latter quarter. I am, Sir, yours, &c.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W. B. Clarke.

Parkstone, near Poole, Dorsetshire,
September 13. 1832.

The subject proposed to consideration in this and the preceding communication is one of great interest; that of decorating, with those pleasing pictures, shrubs and trees, the landscapes of the coast, which, in cases numerous enough, are unornamented by them. Mr. Clarke's communication shows that in some situations there will be great difficulty in rearing trees and shrubs to effect this object; and Mr. Rutger's paper teaches, from experience, the serviceableness of the evergreen oak and cluster pine towards effecting the end desired. Mr. Rutger also imparts other hints on the subject, which merit close attention.

I may here append a short list of trees and shrubs of species very common, yet for the most part suitably tenacious of growth, which, six years or more ago, I noted down from information supplied to me by brother-gardeners who had lived on the coast of Suffolk. My attention to, and enquiries on, the subject had been previously excited by hearing a gentleman complain of the difficulty he had experienced in furnishing his coast grounds with thriving shrubs and trees, and from my having once visited the coast at Aldborough (Suffolk), where it is treeless, shrubless, moorlike, and ungratifying, save in the amplitude and magnificence of ocean here obvious to the eye, and the interest excited by the numerous passing vessels which, in their course to the northward and the southward, plough its surface.

Trees. — Common elm, common wych, willow, Huntingdon willow, oak, poplar, aspen, hazel, ash, wild cherry, hornbeam, birch, maple, service, lime, yew, sycamore, Scotch pine, larch, spruce fir, Weymouth pine, cluster pine, horsechestnut, Spanish or sweet chestnut, alder, elder, laburnum, plane, holly.

Shrubs. — Tamarisk, *A*′triplex *H*àlimus, *A*′triplex *p*ortulacöìdes, *B*upleùrum fruticòsum, *R*úscus aculeàtus under tall trees, common dogwood (*C*órnus sanguínea), common spindle wood (*E*uónymus europæ`us), common broom, and the furze.

This list is doubtless susceptible of correction and extension, and these acts, I hope, will be performed on it by correspondents. Perhaps there is no subject better worth their teaching others upon, than the best means of converting a dreary and desert-like coast into a richly furnished landscape; that those whose property or duties may require them to reside in spots so little favoured naturally (some coasts are charmingly planted independently of man), may draw and establish round their dwelling-place the beauties of vegetable nature. However common the species named above, or others which correspondents yet may mention, may be, such are more valuable at first than choicer kinds; because, from their hardihood and usual tenaciousness of growth, they are more likely to thrive in unindulgent soils and situations. When these are well established, choicer kinds may be reared beneath their shelter. But, common as I call them, they seem to include among themselves nearly all the kinds on which Cowper has thus pleasingly remarked: —

—— "Attractive is the woodland scene,
Diversified with trees of every growth,
Alike, yet various. Here the grey smooth trunks
Of ash, or lime, or beech, distinctly shine
Within the twilight of their distant shades.
No tree in all the grove but has its charms,
Though each its hue peculiar; paler some,
And of a wannish grey: the willow such,
And poplar, that with silver lines his leaf,
And ash far stretching his umbrageous arm;
Of deeper green the elm; and deeper still,
Lord of the woods, the long-surviving oak.
Some glossy-leaved, and shining in the sun;
The maple, and the beech of oily nuts
Prolific, and the lime at dewy eve
Diffusing odours: nor unnoted pass
The sycamore, capricious in attire,
Now green, now tawny, and, ere autumn yet
Have changed the woods, in scarlet honours bright."
Cowper's Task, book i.

Of the names of trees and shrubs contained in my brief list above, the greater part was told me by Mr. Joseph Malpas, jun., of Michaelstow Hall gardens, Ramsey, near Harwich; who remarked that the Spanish or sweet chestnut is the pride of all the timber trees in that neighbourhood; that there are most magnificent specimens of it existing thereabouts; and that its wood is a good deal used there, and deemed almost equally durable and valuable with that of the oak itself. Should correspondents be pleased to follow up this subject, they will doubtless notify, in each coast neighbourhood on which they may report, the kind or kinds of tree or shrub which thrives the most perfectly; and notice, in connection with such instance, the soil, and more particularly winds, which most prevail there. — *J. D.*

Art. IX. *The Formation of a National Society for the Promotion of Arboriculture suggested; and Hints on the Disease prevailing in Plantations of the Larch Tree communicated.* By Mr. James Munro.

"There is a pleasure in the pathless woods." *Byron.*

Sir,

It is now nearly two years since I became a constant reader of this Magazine: during which period I have often had to regret that, while communications tending to promote the interests of horticulture have poured in upon you from every quarter, arboriculture has seemed to be totally disregarded. Now, Sir, to what cause can we attribute this torpitude of feeling toward this valuable branch of rural economy in practical men; as well as in those from whom better things are to be expected, the landowners? The only reason seems to be, the want of this great desideratum, a society exclusively for the promotion of arboriculture: from such an institution much may be reasonably expected. The important improvements which have been effected in our systems of horticulture and agriculture since the establishment of their respective societies in this country, and the fact, so obvious, that we are deeply indebted to the impetus given by these societies to the spirit of enquiry and improvement in various branches of domestic economy, make it appear somewhat unaccountable that a society exclusively for the promotion of arboriculture has not been established even years ago. That a national sylvan society would be productive of results as important as either of the other societies have been in their respective departments, will not admit of a doubt: nay, the high pitch to which horticulture and agriculture have arrived, warrant the conclusion that, if we had a more comprehensive means for collecting arboricultural information than we at present have, we should be put in possession of many valuable hints from persons employed in the management of woods; which hints, otherwise, may perish with those who can and would communicate them. It will be admitted that our planting interest, in point of importance, stands next to that of agriculture: but why it has been denied the benefit of a separate focus for the concentration of the widely scattered rays of information, while horticulture has been so long indulged with this advantage, is a problem which I leave for solution to the landed proprietors; who, in this instance, lose, and have lost, sight of the pound in search of the penny. There certainly can be no greater source of enjoyment to a country gentleman than that of attending to his woods, and beholding them in a prosperous and well-regulated condition. When he casts his eyes upon a woodland coeval with himself, and now far upward sprung, while he, a pygmy, gazes from beneath, to wide-spread branches "that embrown the day," there is a sublimity in the contemplation which every other pursuit fails to produce. "There is a pleasure in the pathless woods," which every ardent admirer of sylvan progression cannot fail to appreciate: yet, with all the allurements of which practical forestry is possessed, how very few there are who avail themselves of this most rational species of enjoyment! The greater proportion of our woods, from neglect and mismanagement, appear as if they belonged to nobody. It is no uncommon sight to see nurse and nursling allowed to grow up together, locked in each other's arms, as if it were intended they should never be parted; till the famished parent earth groans under the cumbrous load, and the want of air and scanty nourishment conspire to hurry on a precocious maturity. Whence the cause of this neglect? I should suppose it to lie in the want of a properly constituted system of management. Were I asked for a remedy, I would answer, let a national society be formed without delay. Such an institution, with royalty for its patron, would call to its aid such a host of scientific and practical men as could not fail shortly to promulgate a system of management upon which wood proprietors could depend, and act with safety. That such a measure will soon force itself upon the notice of the planting public, I have little doubt; for, although it must be admitted that there are a few who keep their woods in a tolerable state of order, yet, generally speaking, the forester is found without a regular system, and acting at random: the ill effects of which are yearly becoming more apparent; and of which a stronger proof need not be adduced than the actual condition which our larch plantations are in at the present day. Here disease is making alarming advances; and, if something is not speedily done, the probable consequence is, the extermination from our soil of this seemingly degenerated species.

In offering a few observations on the probable causes of disease in the larch, I feel fully alive to my inability to handle a subject of so grave importance as this is, and as it ought to be considered: nay, my inexperience might justify the charge of presumption, were it not that the only aim which I have in view is, to endeavour to divert a portion of that flood of talent which streams through the pages of this Magazine, from the already fertilised fields of horticulture, into the rough channels of the too much-neglected science of arboriculture: in short, to draw the attention of some able arboriculturist to the subject, and, if possible, induce the proprietors of woods to take into their serious consideration what so immediately concerns their interests.

Since the introduction of larch to this country, somewhere between 1730 and 1740, I conceive that three eras have occurred. First, the introduction of it; then its occupancy of a situation in the garden and the shrubbery; and, lastly, its general use in plantations. The first are what may be termed the original larches; and, so far as I know, disease has not been observed in any one of them. Under the second era, commencing about seventy years ago, the hardy nature of the tree came to be better understood. At this period, it was partially diffused over the country on select spots: among these trees prevails the disease called pumping, and it will be found to exist, in various degrees of extent, in every district of the country where such plantations are. But the most unfortunate era for larch seems to be the third, commencing from twenty-five to thirty years ago, when the mania for cheap and seedling planting spread over the island. The hardy constitution of the larch having been fully ascertained, it was planted out from the seed-bed in millions, in every soil and situation. Amongst these plants a still more malignant distemper presents itself, threatening entire destruction to the species. This disease somewhat resembles the canker in apple trees: first a branch gives way; then a black liquid issues from the point of union with the trunk, the regular ascension of the sap seems to be impeded, and the alburnum is disposed in rather large quantities on each side of the affected part, which gives the tree a very unsightly and gibbous appearance. In many plantations of this neighbourhood, few trees which belong to what I have termed the third era have escaped. Here the most partial observer cannot fail being forcibly struck with the fact, that the health of our larch plantations, of the different periods or eras which I have marked out, has taken a decidedly progressive turn for the worse: hence the prevalent idea that larch, in this country, has degenerated by continued seminal procreations.

In the case of canker in fruit trees which are cultivated for fruit only without regard to timber, the attempt to cure or arrest the disease is rational; but any attempt to cure canker in larch, by external application, would, in fact, be an approximation to the labours of an old public acquaintance, Mrs. Partington. The only thing that can be done is to prevent; which, in almost all cases, is much easier than to cure: and I hold the opinion, at present, that prevention is far from hopeless. This stage of the subject, however, I reserve for some future communication; and, in the mean time, confine my remarks to what has been termed pumping.

The cause of pumping, like that of canker, I believe to be mismanagement in cultivation; and though here, also, a cure is hopeless where the disease has established itself in any individual tree, prevention is in the power of the assiduous planter. I have already stated, that, amongst the original larches (that is, such trees as were planted previously to the commencement of the second era), disease is unknown. May not this be accounted for from the nature of the treatment which plants supposed to be of delicate constitution might receive? From this circumstance, there is just reason to suppose that great attention was observed; that the plants were transplanted, and, perhaps, retransplanted; and not finally planted out until they had attained a considerable altitude, and were in some measure in possession of the perfecting capabilities. By means of transplanting and retransplanting, previously to the final removal, an effectual check would be given to that vigorous growth so natural to young trees; a less extensive layer of young wood would be deposited, such as our short and often cold summer is capable of converting into hard durable timber. What tends to give these observations a colouring of truth is the fact (if my information is correct), that pumping has begun amongst the larch that were planted in the second era, about Dunkeld; whilst the original trees are still perfectly sound. It then appears that, in this era, the planters made the first false step aside from that path of cautious and guarded treatment which was observed by their more fortunate predecessors of the former period. They having ascertained that the tree was more hardy than was at first supposed, it was planted out in considerable numbers from the nursery lines, one year transplanted; a few, perhaps, of them from the two-years' seedling-bed. At this tender age, no check was experienced by the plants at removal; they struck down their roots at once, and rushed away in growth with surprising rapidity. The proprietor, delighted at the progress which they made, calculated upon a rich harvest for posterity, little dreaming that decay had commenced the work of devastation by the very cause which excited his fond anticipations, a too rapid growth.

I have consulted practical men as to disease in larch, all of whom were inclined to blame the soil.* "Oh!" said one, "it is no wonder to see these trees pumped: it is rather surprising that they grow at all on that cold wet bottom." "Too dry a situation," says another; while a third makes a fault of the soil being too rich. I suppose, these general causes are assigned because they either will not, or cannot, be at the trouble of enquiry. Be that as it may, with such instructors, it need not be wondered at, if, when first I betook myself to forestry, I was a firm believer in the soil doctrine; but one or two years' practice convinced me that the creed of the soil being the sole cause was untenable. It unfortunately happens for this doctrine, that, in every plantation of fifty to seventy years' standing, the greater proportion of the trees are not pumped: and I myself have cut down larches where one was pumped, and, at not four feet distant, another was cut down quite sound. Now, I would ask, what difference could exist here in the soil, where the roots of the one must have been interwoven with those of the other? I am far from doubting that soil not congenial to the habits of the larch may constitute one of the destructive causes, when circumstances may have connected it with the others; but that it is the sole, or even the chief, cause, does not appear: for, either on a bad soil they must be all pumped, or, on good soil, they must be all sound, which is not the case.

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* "The common larch is very soon lost when planted above a substratum of red sandstone. In the vale of the Annan, wherever the sloping banks have a substratum of this rock, or one composed of a sort of red

Is there no ground, then, for supposing that an extensive annual deposit of alburnum has some hand in the matter? If we examine a larch tree that is pumped, when cut down, we find that it is the growth of the first ten or fifteen years that has given way: and, generally, the decay extends to that side of the tree upon which the rings are broadest; while the outer rings, that have been formed of less extensive deposits, are quite sound. This circumstance comes with considerable force against the opinion that the sole cause is the soil; for, if this were the fact, how is it that the attack is not all over the tree at once? But, no: it is generally confined to the growth of the first ten or fifteen years, and to nearly about as many feet up from the root; leaving the outer

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sandstone, shingle, or gravel, the outward decay of the tree is visible at from fifteen to twenty-five years of age. The internal decay commences sooner, according to the depth of the upper soil, in the centre of the trunk, at the root, in the wood being of a darker colour, extending by degrees in circumference and up the stem, until the lower part of it becomes entirely deprived of vegetation, and assumes a tough and corky appearance. This extends to the whole plant, which gradually decays and dies. On the same soil the oak grows and thrives well." (*Sir William Jardine*, in his notes to White's *Natural History of Selborne.*) — *J. D.*

rings sound, until age brings about that natural decay to which every vegetable body is liable. From this, may we not conclude that it is imprudent to plant out larches before they shall have attained a considerable age and size? Or is there any thing irrational in the idea of checking the vegetative energies of larch in its youth? and, as it is an exotic, compel it, as it were, to accommodate itself to the climate; that, by depositing a moderate annual layer for the first ten years, such as our season can ripen, a firm and healthy nucleus for future depositions may be secured, when the capabilities afforded by nature for perfecting the system would be developed, and the process of formation completed.

I only farther observe, at present, that another means of promoting rapid growth is density of planting; or, I should rather say, that of allowing plantations to grow up in an over-crowded state: of the evil of which every planter professes to be aware, and yet which every planter is in the habit of too long neglecting. Some hold the opinion that woods should be allowed to thin themselves, as is the case with the Norwegian forests. With trees indigenous to the country, this may be all very well; but it is questionable whether this be the proper mode of treating exotics. Besides, the greatest possible number, on the smallest possible space, is certainly not the surest way to secure the greatest possible return, as the actual state of many plantations show: and hence the propriety of judicious thinning in every instance, whether the trees be indigenous or exotic. Judicious management, however, circumstanced as we at present are, need not be expected. Individuals may recommend any system of management they please; but, such is the aversion which gentlemen have in general to apply the axe to the most worthless trees, that, unless a system having the sanction of some regularly constituted body is given them, they will never have confidence to act. Here, then, is the necessity for a national sylvan society.

I am, Sir, yours, &c.

Brechin Nursery, June, 1833. JAMES MUNRO.

MR. E. MURPHY has offered, in Vol. VII. p. 295—298., some remarks which may be read with advantage, in connection with Mr. Munro's valuable communication; as may a paper in the *Quart. Journ. of Agr.* for September last, on the subject, by our correspondent G. I. T., the author of the *Dom. Gard. Man.* We recommend both to Mr. Munro, and hope that, after reading them, he will continue his communications to us on this important subject. — *Cond.*

Art. X. *On training the Oak Tree, so as to produce curved Timber, for Use in the Construction of Ships.* By Mr. James Munro.

Sir,

The superiority, in point of durability, of such oak as is to be found in many parts of Scotland over that which is grown on richer soils and in warmer climates, is generally admitted; and this superiority can only be accounted for by attributing it to the slow (so slow as to be almost imperceptible) accumulation of vegetable fibre; while, on the contrary, the inferiority of the oak of milder climates is a consequence of a condition of growth the reverse of this.* Indeed, it seems to be an unalterable law in the appointed economy of vegetable bodies, from the mushroom, the child of a night, to the tree that has braved the storms of a thousand winters, that in an inverse ratio to the rapidity of the formation shall be the durability of the substance formed; and so will it be with any particular species, according as the formation of its substance is, by a variation of treatment, hastened or retarded.

Sir Henry Steuart, in his able refutation of the "mucking system," says that "the Scottish mountain oak seldom rises to a fifth part of the English tree." Such an assertion, from such an authority, is certainly ill calculated to advance the interests of that species of tree from which we derive our national bulwarks; particularly as there is not a very great difference, in the degree of temperature, between the low country and some of the highland glens. Those who are aware of this, and who, at the same time, have read Sir H. Steuart's statement, can scarcely be blamed if they should form a rather contemptuous opinion of the oak, regarding its cultivation as a forest tree, or entirely overlook its merits for any thing else than a mere coppice bush. Unfortunately, there remains no living specimen of what Scotland was capable of producing. Ever a prey to external as well as internal foes, her primeval forests were, in the course of her long and destructive wars, either given to the flames by the enemy, or they fell by the wasting hand of time. Yet, in absence of these, there are records that prove sufficiently that Scotland, in ancient times, reared oaks of no inconsiderable stature; and the huge logs of black oak which are to be found buried in the mosses [peat bogs] afford a clear demonstration that oak fit for naval purposes may be reared in Scotland. The necessity and vast importance of having a large and regular supply of curved wood for naval architecture must strike every one who possesses a British heart. I dare not say it is a lack of patriotism on the part of the Scottish landlord, nor can I say how it is, yet true it is, that there is not an estate in the country whereon oak trees, to any considerable extent, have been planted, or kept in training, expressly for the use of the navy. I am aware that it is not necessary that all the trees required in building a ship should be of the curved kind; but well-formed curves, or knees as they are called, are often difficult to be found in sufficient number. To relieve us from this difficulty, a system of training ought to be commenced by which the requisite quantity of knees required for a whole future navy might, to a certainty, be all put into form in the short space of two years, or three at the most.

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* Might not the cause of the dry rot be traced to this source? Since the attacks of the rot are partial, it might be worth while to learn whether the planks infected with the rot were taken from the heart of the log; for, as such planks would, for the most part, consist of the earlier-formed layers of woody matter, this would, in consequence of having been deposited in large quantities, be more porous in the grain, and therefore less durable, than the layers more recently formed.

If the honour of developing such a system have been reserved for me, I shall certainly think myself singularly fortunate: but, alas! the thing is surely too simple in its nature, and too obviously efficient, to have escaped the notice of those who, from time to time, have had the charge of the naval forests. Nevertheless, I shall here proceed with the developement; and should the same mode be already in practice, you have only to suppress this paper: if this be not the case, I consider the method well worth the attention of the forest commissioners.

In or about the same year that I made my experiment in preparing large trees, which you have been pleased to notice [in p. 217.] with approbation, I selected a few oaks, in a thin well-aired plantation, from sixteen to twenty years old: I had their heads taken off, leaving nothing but a bare pole seven feet in height. This was done in the course of the winter months, that the stools might have the full advantage of the first efforts of the returning spring. I watched with great attention as the spring advanced; and toward the latter end of May the stools sent out, from top to bottom, from the bark thousands of young shoots. I made choice of four of the strongest shoots, situated at right angles; the remainder of the numerous brotherhood was rubbed off. From the strength of the stools these four remaining shoots made considerable progress, in the course of which I had them trained out horizontally, as represented in the outline. (*fig.* 128.)

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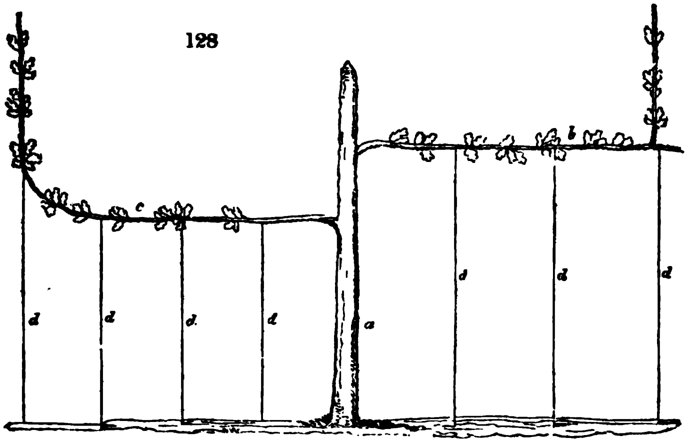

a, The trunk, or stool. b, A branch so cut in as to produce an acute knee at its extremity.
c, A branch with the natural curve.
d, The upright posts to which the branches were, with nails and shreds, pinned down to the form.

This experiment, owing to my having to take my departure to a distant part of the country, was left entirely to nature, so that I am unprepared to say what the result may be. This, however, I consider of but little consequence, as the practical result is as certain as the celebrated method of making an egg stand upon the small end. Had these trees continued under my care, it was my intention to train the shoots to the extent of ten or twelve feet out from the trunk, when I would have given a natural or an acute curve as fancy might direct. Upon a tree trained upon this principle six to eight knees could be grown; and, what is of no small importance, they can be put into the form required with very little trouble or expense.

I am, Sir, yours, &c.
James Munro.

Brechin Nursery, August 5. 1833.

Art. XI. *A Notice of the Species of Pines added to the Pinetum at Dropmore, and of some showy Species of flowering Plants which decorate the Garden there.* By Mr. Philip Frost, Head Gardener at Dropmore.

Sir,

I send you, according to the wish expressed by you when here, a list of the new species of pines which have been added to our pinetum subsequently to the publication of an account of it in your Vol. III. p. 263. to 268.: —

*P*ìnus Lambert*iàna.*
*t*axifòlia.
L'lave*àna.*
montícola.
grándis.
hispánica.
amábilis.
*P*ìnus nígricans.
Píchta Fischer.
ponderòsa.
Sabin*iàna.*
Sabin*iàna* var.
Gerard*iàna.*
nóbilis.
*C*èdrus *Deodàra.*
Also an unknown species, sent here for *Deodàra.*
Araucària [Altíng*ia*] Cunninghàm*i.*
Dámmara austràlis.

I shall also give you a brief notice of some of the new and beautiful plants which we bed out, group, or otherwise apply for the decoration of the out-door garden during summer.

V*erbèna venòsa* is one of the greatest treasures of the garden when planted out in a bed; and we have a bed of plants of it arranged by the side of a bed of *V*erbèna *c*hamædrifòlia, and the abundant blossoms of the two, those of each so beautiful and so unlike those of its neighbour, supply superb masses of colour, mutually relieved and enhanced in splendour by the striking contrast of the colours of the two. *V*erbèna venòsa may be readily multiplied by cuttings inserted under a hand glass, or in a frame with a little heat. It has a peculiar property of throwing up suckers at a distance from the root, which soon make a good thick bed. Any light soil suits it.

V*erbèna Sabìni* ? is quite a new plant here. I am preparing for a bed next season. It is a procumbent and delicate little plant, well adapted for beds, or to hang over the sides of flower baskets.

*Nierembérg*ia *phœnícea* is also a fine plant for grouping into beds, but should not be planted thick, or it becomes too much crowded.

*Nicot*iàna *longiflòra* is a beautiful plant to stand singly in borders. It grows three feet high, and produces a mass of large white flowers, which close for a few hours in the middle of the day. Its seeds should be sown in the autumn; and, if the plants arising from them be kept in a cold frame or greenhouse, they will flower earlier and finer than if not sown until the spring.

Calandrínia grandiflòra is also an eligible plant for borders. It attains two feet in height, and is very showy.

Salpiglóssis, the species of, do well here, treated after the same manner.

Argemòne grandiflòra is also a great acquisition to the borders.

A great many plants are naturalised throughout the woods here; and it will be my study to scatter all the seeds I can procure, in every wild part, which, if they grow, will eventually supply great pleasure and amusement to the traveller.

This might be done in various parts of the kingdom, and would add greatly to the beauty of every place.

Clumps of Plants of the Tuberose I have this year planted clumps of bulbs of the tuberose (Poliánthes tuberòsa *L.*), which are now remarkably fine, and are delightfully fragrant. In planting them, I prepared a hole four feet deep, and filled it up three feet with well decomposed manure, and one foot of turfy loam, with a small portion of sand. They are admired by every observer, as being the finest they have ever seen.

If my observations prove of any service to you, I shall feel much pleasure in having forwarded them.

I am, Sir, yours, &c.
PHILIP FROST.

Dropmore, September 2. 1833.

BOTANISTS are not agreed upon either the generic or specific relations of the beautiful plant called, above, Nierembérgia phœnícea; and, consequently, are not agreed upon either its generic or specific name. Dr. Hooker, in the number of Curtis's *Botanical Magazine* for Dec. 1831 (see *Gard. Mag.*, vol. viii. p. 21.), has, in t. 3113., where he has given a figure and description of the plant, denominated it Salpiglóssis integrifòlia. No plant can, in habit, be well more unlike any species of Salpiglóssis under present cultivation in our gardens; and if the characters of habit are of that value which Dr. Lindley's separation of the genus Lòwea from the genus *Ròsa*, by means of them alone, assigns to them, Salpiglóssis integrifòlia *Hooker* can hardly be deemed a Salpiglóssis at all. In Sweet's *British Flower-Garden* for December, 1832, t. 172., there is published a figure of that elegant little green-house plant, Nierembérgia grácilis, with a description of it by David Don, Esq., who appends to the description a notice of the close relationship subsisting between the genera Salpiglóssis, Nierembérgia, and *Petùnia*, more particularly between the latter two, and remarks to the effect that the plant which Dr. Hooker has denominated Salpiglóssis integrifòlia is rather a species of *Petùnia;* and he there proposes to call it *Petùnia* phœnícea. As the plant, in habit of growth, foliage, inflorescence, calyx, seed-vessel, and punctulate seeds, closely resembles the *Petùnia* nyctaginiflòra, although it has not, like that, a long slender tube to its corolla, it would seem natural to deem it a species of *Petùnia;* and, were this determined on, the epithet phœnícea, expressive of the rich colour of the plant's blossoms, would seem to be a not unsuitable one. In some gardens the plant is designated by the name of *Petùnia* integrifòlia; but, if the plant be received as a *Petùnia*, the epithet integrifòlia does not distinguish it from the *P.* nyctaginiflòra, which has also entire leaves; although, while the plant was considered a species of Salpiglóssis, the term integrifòlia did sufficiently express the plant's distinctness from the species of Salpiglóssis previously in cultivation, whose leaves have margins more or less divided. However, in Sweet's *British Flower-Garden* for June, 1833, t. 193., Mr. D. Don, who has there supplied a figure and description of this plant, has proposed to include the genus *Petùnia* in the genus Nierembérgia, and has accordingly published the present plant under the name of Nierembérgia phœnícea; a name indicative of affinities whose existence botanists seem disposed to dispute; for Dr. Hooker has already, so early as in the *Botanical Magazine* for August, 1833, t. 3256., expressed his dissent from them.

Whatever name be determined on for this plant, it is, past a question, one of the loveliest showiest ornaments of the hardy garden which are yet in cultivation. In p. 107. I have remarked, that, on Sept. 3. 1832, I learned, in the Horticultural Society's Garden, " that a blossom or blossoms of it had there been just previously impregnated [at least the impregnation had been attempted] with the pollen of *Petùnia* nyctaginiflòra." On August 13. 1833, I had the pleasure of seeing, in the Society's Garden, a bed of plants of the *Petùnia* (or Nierembérg*ia*) phœnícea, and was told, on enquiry, that part of these plants were from the seeds of the impregnated blossoms, and that no obvious variation had resulted. Nothing could in splendour exceed this bed: all the branches of all the plants were horizontally decumbent, and, from the nearness of the plants, crossed and interlaced each other so as to perfectly cover the ground from sight; while every branch was a wreath of blossoms; and the aggregate of all the wreaths was, as it were, a bed or bank, or, if you will, a carpet, of rich rosy purple; relieved, enriched, enlivened, by the garniture of the numerous full green healthy leaves, scarcely more numerous than the blossoms themselves. It was late in the afternoon when I saw this bed; when, superbly beautiful as it then was, I was told that it was still more so in the middle of a mildly sunny day. The bed, I should think, was 12 ft. or 15 ft. in length, by 3 ft. or 4 ft. in breadth: the soil was, I think, a sandy loam; at all events, a soil not over moist. At the base of the front wall, which has a southern aspect, of the cottage in which I reside, I planted, in the end of April, or early in May, out of a pot, a rather small plant of this *Petùnia* (Nierembérg*ia*) phœnícea, which I obtained of Mr. Dennis, Chelsea, who had struck it from a cutting in the preceding winter, or early part of spring, and had, up to that time, kept it in a green-house. From the time of my planting it until now (September 10.), it has grown and flowered incessantly, and will, doubtless, continue doing so till the frost prevent it: it is trained over the face of the house-wall, and has been very much admired by passers by, especially for the last two months, as its extent, and the number of its flowers, through the course of this time, have rendered it very conspicuous and striking: the plant now measures more than 4 ft. in height, by about 3½ ft. in breadth. Mr. Maund, in his *Botanic Garden*, mentions a plant which is trained to a wall in his garden, and has attained a still greater extent; and, in a letter dated Bromsgrove, Sept. 9., remarks: — " It is now 10 ft. wide, and 7½ ft. high, regularly covering the whole space, and bearing upwards of twelve hundred expanded blossoms: it is quite a purple blaze." It seeds but sparingly, as out of every thirty flowers certainly not more than one is followed by a seed-vessel and seeds. *Petùnia* nyctaginiflòra is in the same condition. It would, perhaps, be well to sow the seeds as soon as ripe, to force them by artificial heat to grow immediately (without this, they might, perhaps, lie dormant in the soil until next spring), and to pot off the plants which may arise from them, and keep them in a green-house through the winter, for planting out early next spring, for the decoration of the garden during the summer and the autumn. It seems generally admitted that plants of it from seeds produce larger flowers than, and are preferable to, plants raised from cuttings: and, as the flowers on my trained plant are not so fine as those on the prostrate plants at Chiswick, the prostrate posture would seem the more congenial of the two. Perhaps a row of plants grown in an open part of a garden between a double row of neat wire hurdles would have a fine effect: their branches would be kept up by, and might be woven withinside, the bars of the hurdles; and thus the flowers of the plants would be displayed on both sides of, and all over, the floral hedge or bank thus formed.

Nicotiàna longiflòra *Cav.* is commended by Mr. Frost, above, for its beauty. *Nicotiàna* pérsica *Lindl.* deserves like commendation: a large group of plants of the latter was very abundant in large white and, seen collectively, showy flowers, in the afternoon of August 13. 1833, in the Horticultural Society's Garden: I say afternoon, because the flowers of the tobaccos are usually less beautiful under a midday sun than in the evening and the morning, when, moreover, they effuse a pleasant odour. Of both *Nicotiàna* longiflòra *Cav.* and N. pérsica *Lindl.* a notice was given in the last Number, p. 487.

Calandrínia grandiflòra. A fine bed of plants of this species was beautiful in the Horticultural Society's Garden in the summer and autumn of 1832. The flowers of the species of this genus most display their beauty in the heat and bright light of the midday sun. Calandrínia speciòsa *Lindl.*, a description of whose charms, and directions for cultivating it, are in the last Number, p. 485., quoted from Dr. Lindley, is there shown to be an eligible species, although a much smaller one, for the same purposes of floral decoration. — *J. D.*

ART. XII. *A Mode of preserving the greatest Number of Pelargoniums and other Kinds of Green-house Plants through the Winter, in the least possible Space.* By Mr. PETER MACKENZIE, Gardener to Robert Lowis, Esq., of Wester Plean.

Sir,

GARDENERS are, in the spring, often at great trouble in collecting a number of cuttings of green-house plants, especially of pelargoniums; and, after these have struck, and the plants thus formed have flowered through the summer, they must, when autumn has drawn near its close, be put into some place of safety for the winter. At those places where there is not proper accommodation for them, the gardeners, having a regard for the plants they have reared, are often much perplexed in bringing them through the winter. In consequence, when the time has arrived at which the plants must be transplanted from the borders into pots, and after the knife has been used freely upon them, they are often crowded together in ill-lighted rooms and other out-houses, where they can scarcely draw their breath, and where numbers of them die; and those which survive the winter are few and ill-favoured. To endeavour to remedy this evil is the object of this paper. The plan is a very simple one.

About the time at which green-house plants are taken from the borders, go over them, and take off what cuttings they can spare (some may be cut to pieces, and made the most of); then take pots about eight or nine inches' diameter, put twenty or thirty cuttings in each, and plunge the pots up to the rim in a hot-bed which has but a slight heat; cover the pots of cuttings with hand-glasses, or a small frame, and in a short time the cuttings will have emitted roots. They may remain there as long as the weather is mild. When the frost sets in, remove them to a room, or any other place where they may be protected from the cold. A small window, with a shelf in the centre, will contain 200 plants. If the same window were employed for holding full-sized plants, two common-sized pelargoniums would fill it. In about the middle or latter end of March, plant each rooted cutting in a small pot, and put them into any sheltered situation until the season be fit for transplanting them in the open air. By this method a supply of young plants may from year to year be obtained, with scarcely any trouble.

I am, Sir, yours, &c.
PETER MACKENZIE.

Stirlingshire, April 22. 1833.

ART. XIII. *On Coping for Garden Walls.* By Mr. ARCHIBALD GORRIE.

Sir,

IN the *Encyclopædia of Gardening* (§ 1557.) it is very justly observed, that "it is not settled among gardeners whether the coping" of garden walls "should project at all;" and many feasible arguments have been adduced why they should not. The are said to look clumsy if far projected, to harbour vermin, to prevent genial showers from refreshing the foliage: and all this, and a great deal more, may be very true. On the other hand, however, it must be conceded, that garden walls are generally built for affording a higher temperature in order to raise the finer fruits, natives of warmer climates. It is also well known that the earth radiates heat in the night-time, and under a clear and still atmosphere; as any substance which intercepts the escape of such radiated heat into the blue expanse adds considerably to the elevation of the temperature on the lower side of that substance compared with that indicated on its upper surface. Whether this proceeds from the "frigorific rays," being arrested in their downward course, according to some who insist that cold is a body, or from radiated heat arrested and returned to the earth's surface by projected coping or other substance; be the cause which or what it may, few, I believe, of my brethren, in this intellectual age, are so unscientific as to deny the result. If any such there be, I must beg to refer them to *An Essay on Dew*, by Dr. Wells (p. 252—254.), or to your remarks on the same subject in the *Encyclopædia of Gardening*, 3d edit. § 1206. Taking it for granted, then, that, in clear and calm nights, projecting copings preserve a greater degree of heat on the surface of the wall and border immediately under that coping, and that the difference of temperature in favour of a projected cope may vary from four to eleven degrees, according to circumstances, it will be readily conceded that in this variable and cold climate the advantages offered by a projecting cope should not be rejected. This granted, the question now occurs, how are its objectionable parts to be done away with? The expense of an eighteen-inch projecting cope is of itself no joke, and adds considerably to the estimate for building a new garden wall where flag-stones are at a distance; and, after that expense has been incurred, there is an appearance of gloom and heaviness, ill adapted to the light and natural appearance which should always characterise the garden.

I have long observed the advantage to peach trees of a coping formed by the ample leaves of the fig, compared with others not under such protection. This, some years since, induced me to turn my attention in quest of some ornamental plant which might be trained on a light trellis from the ground upward to the top of the wall, at right angles from the wall, and occupying the same breadth across the border as the trellised projection at top; the supporting trellises to stand at the extremities of the shoots of peach and other tender fruit trees, or at equal distances from their stems. The plant I have fixed on, and planted for that purpose, is the double-flowered Ayrshire rose, of which (thanks to W. Martin, amateur florist, Dundee) we now possess so many beautiful and elegant varieties. Its rapid growth points it out as giving effect in the shortest time; its deciduous nature leaves both projecting and side trellises open in winter, to admit of the larvæ (grubs) and ova (eggs) of insects being swept off by the broom, or subjected to the chilling blasts of December; and exposes the young wood to the full play of the wind, at a season when cold acts as a stimulus, and promotes the future rapid energy of vegetation in spring.

The leaves of this rose tree expand early in spring, when their aid is wanted in exposed situations; and, where plants of it are trained on side trellises, they contribute to produce a calm serenity along the face of the wall, while those on the projecting trellis become sufficiently close for repelling terrestrial radiated heat, and throwing it back on the wall and border: thus, in both instances, contributing towards the protection of the tender blossom, and the setting and maturing of the fruit. The force of dashing rains is modified by the projecting cope, while they are allowed to fall on the foliage in gentle and refreshing showers, as filtered through the projecting live vegetable cope; a cope which can easily be rendered close or open, according to the wish or fancy of the gardener; and which, in point of taste, utility, cheapness, and elegance, can never be matched by the clumsy projections of wood or stone. I am, Sir, yours, &c.

ARCHIBALD GORRIE.

Annat Gardens, July 17. 1833.

THE beautiful manner in which the branches of a plant of the Virginian creeper (Ampelópsis *h*ederàcea *Mx.*), now in sight, are festooning the arms of a pear tree, from which the extremities of some of the creeper's branches depend in verdant garlands to the ground, and thus, in outline, form a tasteful bower, suggest the question, might not this very rapidly and most extensively growing shrub, abundant in ample deep green shading leaves in summer, " in scarlet honours bright in autumn," and leafless in winter; and farther, fastening, by its clasping tendrils, its own branches to the trellis over which they may be led, be used, in the absence of the double-flowered Ayrshire rose, or other plants as eligible, to serve the same umbrageous office? — *J. D. August* 27. 1833.

ART. XIV. *On the Advantage of growing Pine-apple Plants in Pots made with Holes in their Sides.* By JOHN HAWKINS, Esq.

Sir,

ABOUT forty years ago I was a grower of pine-apple plants, and observing that those plants throve the best whose roots grew out at the bottoms of the pots into the tan, I was led to have a few pots made with eight holes in the sides of each, to let the roots of the plants run out at into the tan. These holes were made at equal distances, about the circumference of my finger, round the pot, and from three to four inches from the top; but by some cause or other my growing of pines was discontinued at that time, and until February last, when I again became a grower of pines for my own table, and again used the pots which had lain by so many years. The advantage of these pots over any other became then very apparent, both by the strength of the plants, and the quickness of their growth. The leaves of some of them were nearly white. I measured the length of a root of the plants when they were moved the other day, and found it above a foot long, although broken off. It appeared to have run many feet into the tan, if it did not reach the bed of leaves under the tan, which I suspect it did.

It appears to me, from this little experiment, that, where leaves are used instead of tan, the pits will not require to be turned more than once a year; for where the roots are grown far into the leaves, the plants will thrive, although there be but little heat in the bed, because they will have all the advantage of it; which is not the case when the roots are confined within the pots. That a pine plant will grow much faster and stronger, and will not require to be shifted into other pots so often as is generally done; that such large pots, namely, 13 in. wide in the clear withinside at the top, and 13 in. deep in the inside, will not be wanted; that more plants may be grown in a row; and that fruit equally large and good-flavoured may be grown in much smaller pots than those which are now generally used; — these are no small advantages. All my pots, both little and great, are now made in this manner; and next summer I hope to reap the advantage of it.

I am not aware that this hint has been used by any pine-growers, although obvious, and so easy to be put in practice; therefore I am induced to take the liberty to submit it to you, that, if it be worth knowing, it may be made public through your Magazine, for the advantage of your many pine-growing friends. I am, Sir, yours, &c.

JOHN HAWKINS.

Cosford, Godalming, Surrey, Aug. 27. 1833.

ART. XV. *The Results of an Instance of growing the Cucumber and the Melon in [Heath Mould or*] Bog Earth.* By Mr. JAMES FIGGANS.

Sir,

I PUT up my frames in February with dung in the usual way; and it occurred to me to try a two-light frame with bog earth [heath mould], which I had never seen done, anticipating, however, but little the result. When the bed was made up, I put nine inches of bog earth, as taken from the field, into it, and when the heat had arisen, I drew the earth into two heaps, one under each light, to receive the plants, and then introduced a little more earth into the frame. I put plants of cucumber under one light, and of melon under the other. The plants, both of cucumber and melon, ran very fast, and were very strong, and both produced a very fine crop; but I did not pay any particular attention to the number of fruit. As I possessed one seed of cucumber, which I had received as a very fine kind, and which I was, in consequence, anxious to propagate, I introduced it into the side of the heap upon which were the other cucumber plants, to which I applied my knife freely when the plant from the one seed began to run. At the same time I planted in the heap under the other light, one seed of the King William melon; and when the plants from these two seeds began to meet, I used the knife to the plant of the melon until I had left but one vine, upon which I had one melon of 9 lbs. weight. Of the produce of the cucumber seed I annex you a list: —

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* In Vol. VII. p. 285. I have endeavoured to show that the term bog earth would naturally imply that dense, sodden, coagulate, moorish soil which bogs, morasses, and swamps usually supply; and that the dry, mixedly sandy, easily separable mould met with on heaths, and in which the species of heath (*Erica*) delight to grow, would be far more appropriately denominated if termed heath mould. — *J. D.*

Number.	Length.	Circumference.	Number.	Length.	Circumference.
1.	24 in.	11 in.	11.	17 in.	9 in.
2.	21	10½	12.	17	8
3.	19	10¼	13.	16	8½
4.	18	10	14.	15	8½
5.	18	10¼	15.	14	8
6.	18	10	16.	13	8
7.	18½	10¼	17.	14	8¼
8.	19½	9¼	18.	13	7½
9.	18	9	19.	10	7
10.	18	9	20.	8	7

The frâme was only once lined with fresh dung, and that previously to these two seeds being put in. I found that the bog earth required more water by about one third. I propose continuing the use of the bog earth this season, and, if agreeable to you, will communicate the result. I ought to mention that the fruit was of a good quality.

I am, Sir, yours, &c.
James Figgans.

Craigie House, *Ayr*, *May* 17. 1833.

We shall be happy to learn the result from our correspondent, and to hear from him on other subjects. — *Cond.*

Art. XVI. *Short Communications.*

Gardens for the Use of Pensioners, &c. — In a very interesting article on the philosophical history of hypochondriasis and hysteria, in the 23d number of the *Foreign Quarterly Review* for July, 1833, is the following passage (p. 117.): —

" It is some disappointment to a humane person to find, that, of all men who are discontented with their lot, none exceed in the quantity of their grumbling, and in the habit of looking on the wrong side of things, and in a proclivity [propensity] to hypochondriacal imaginations, the old pensioners of the army and the navy at Chelsea and Greenwich. Placed above the fear of want, but deprived of all motive to exertion; neither moved by hope nor by fear, for they have neither promotion to look to, nor disgrace to apprehend; they are miserable, precisely because they have nothing to do. We have often thought that some gentle duties, analogous to the former habits of the lives of these deserving old men, would be a great blessing to them."

Now, we would suggest that to every hospital there should be attached a garden, sufficiently extensive to occupy in its culture all the inmates. Though this sort of occupation might not be "analogous to the former habits" of these inmates, yet we are persuaded that it is so natural, that they would soon not only become accustomed to it, but fond of it. Why should not the whole of the vacant ground at Chelsea Hospital be turned into a garden; and put under the care of a good gardener, who would direct the labours of such of the pensioners as were able to work in it? Much might be said on this subject, if we had not expatiated so largely on it in former volumes. We trust, however, we shall be excused for keeping it continually before our readers. — *Cond.*

A Mode of preventing the Ravages of Birds on newly sown Corn. — The mode adopted in some parts of Fife, for protecting new-sown fields from rooks, wood-pigeons, and other destructive vermin, is the following. In a large field which has been newly sown, place a certain number of stamps (traps), say a dozen, used for killing rats, &c.; cover them *slightly* with earth, and avoid, by all means, any thing like a methodical arrangement of the stamps. A few rooks taken by such means serve as so many beacons, and effectually protect the field, for the croaking noise they make is almost incredible. By this simple operation, many pounds sterling will, in the long run be saved to the farmer. (See the *Edinburgh Advertiser* of the 3rd May last.) The writer can state the success of the above process from actual observation, and he is convinced that, were the method suggested generally known and followed throughout the country, the rooks and other vermin would, in a short time, dread the appearance of a new-sown field as much as they now do the sight of a gun. The proper use of the rook * is to destroy the grubs which are always very abundant in meadow ground.

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* "Is thine alone the seed that strews the plain?
The birds of heaven shall vindicate their grain."
Pope's *Essay on Man*, ep. iii. — *J. D.*

It is stated in one of the Perthshire newspapers of this month, that not less than 27,000 crows were destroyed this season at Dupplin by the demolition of between 11,000 and 12,000 nests; and all this was performed by contract for the sum of twenty-five pounds sterling. — *Anon. June* 25. 1833.

In opposition to the spirit of persecution displayed in the above remarks, against the rook, and other birds,—"vermin," as the writer calls them, — we present a short extract from a notice, of some length, on the usefulness of the rook, which has been published in the *Magazine of Natural History*, vol. vi. p. 142, 143. — *J. D.*

"In the neighbourhood of my native place, in the county of York, is a rookery belonging to Wm. Vavasour, Esq., of Weston, in Wharfdale, in which it is estimated that there are 10,000 rooks, that 1 lb. of food a week is a very moderate allowance for each bird, and that nine tenths of their food consist of worms, insects and their larvæ; for, although they do considerable damage to the fields for a few weeks in seedtime and a few weeks in harvest, particularly in backward seasons, yet a very large proportion of their food, even at these seasons, consists of insects and worms, which (if we except a few acorns and walnuts in autumn) compose at all other times the whole of their subsistence. Here, then, if my data be correct, there is the enormous quantity of 468,000 lbs. or 209 tons of worms, insects, and their larvæ, destroyed by the rooks of a single rookery: to every one who knows how very destructive to vegetation are the larvæ of the tribes of insects, as well as worms, fed upon by rooks, some slight idea may be formed of the devastation which rooks are the means of preventing." (*T. G. of Clitheroe, Lancashire,* in *Mag. Nat. Hist.*, vol. vi. p. 142.)

Proofs of the efforts of the rooks to obtain insects for food in early spring may be readily perceived in a stroll, at that time, over the hay meadows about London. —*J. D.*

On the Ravages of the Tínea *padélla* L. [*Yponomeúta padélla* Latr.]; *and some Suggestions for preserving Plants from the Ravages of Insects generally.* — Sir, No insect makes greater havoc of our whitethorn hedges and apple trees than the little grey moth, *T*ínea padélla *Lin.* Wherever the caterpillars of this insect seat themselves, they appear to be congregated in vast numbers: every spray is covered. The leaves vanish before them; so that, by midsummer, not only single trees, but whole orchards, and entire hedges from end to end, are completely defoliated. Their depredations cease when their change into the chrysalis state takes place, leaving the trees covered with the webs (or, rather, silky threads) by which they transport themselves from place to place; and every leaf shrivelled, as if scorched by fire. Shortly after the exit of the caterpillars, the trees and hedges regain their verdure; but, if any of the fruit itself escape their ravages, it is, in consequence of their attacks on the leaves, small and worthless.

The family of moths are particularly partial in their choice of food, one species affecting one order of plants only. So much is this the case, that entomologists have thought fit to identify them by cognomens derived from the names of plants on which they are found: as, *Sphínx* tíliæ, the lime tree moth; *S.* convólvuli, the bindweed moth; and *S.* ligústri, the privet moth. The instinctive predilections of these little creatures have often suggested the idea that their favourite plants might be defended from their visits by the qualities of other plants to which they are averse. This, indeed, is an old idea: fifty years ago, farmers were advised to protect their young turnips by drawing over every part of the field a bush-harrow made of the branches of common elder. For the same purpose, I have myself, many years back, watered my April-sown cauliflower seedlings with an infusion of the leaves of artichokes, a liquor bitter enough, certainly; but neither elder on the field, nor the decoction of artichoke leaves on the garden, answered the purpose for which it was applied. In these attempts, we proceeded on the supposition that the palates of the insects were similar to our own; and that what was nauseous to us must also be so to them: here lay our error.

Notwithstanding these failures, it is still highly probable that the qualities of those plants so pertinaciously rejected by the insects might be, if properly extracted, available, if not to destroy, at least to disgust, them; which would equally effect our purpose, namely, the preservation of useful or ornamental plants.

I was more than ever struck with these ideas from an observation made by yourself, when, on a late occasion, I had the pleasure of walking with you round your garden at Bayswater. You were lamenting the ravages of the *Tínea* padélla, and pointedly alluded to the untouched and lively verdure of the ivy, compared with apple trees close at hand, stretching forth their "naked arms" to the sky. I believe I mentioned at the time, that, were it practicable to transfer the qualities of the ivy, in a fluid state, upon the foliage of the apple, the latter would be thereby protected from the attack of the moths (as more than one are engaged in the work), as well as, perhaps, that of all other insects.

Ruminating on the subject, I am more and more impressed with the necessity that some exertions should be made, and experiments set on foot, to ascertain whether it be the essential qualities or rigidity of the membranous structure of such plants as the ivy which renders them noxious or uninviting to predaceous insects or other animals, as snails, &c.

In such investigation, the chemist might be invoked to render assistance. To detect by analysis the chemical principles; to ascertain by solution, expression, decoction, or other means, the peculiar qualities of the invulnerable plants alluded to, would be a necessary preliminary; next, the facility of application; and, lastly, the effects of the application. Such experimentising may be deemed a prostration of science; but, if the preservation of the beauty and usefulness of plants be not an object worth the chemist's care, I know not (except human life and health) what is. I may, moreover, add, that, if there be any one thing more than another that deserves the gardener's utmost thought and exertion, it is the most successful mode of preventing the depredations of insects on his crops.

Whatever quality may be hit upon, whether vegetable or mineral (for some of the latter may be found most efficient), as a safeguard of plants, it ought to be administrable as an ablution or wash: as such, the garden-engine or syringe might be employed with ease, and with little loss of time. The best season to apply any such wash or sprinkling is certainly the autumn, because it is then that the eggs of insects are laid on the bark of trees on which they breed. Another sprinkling or two in spring (one before, and the next just after, the buds have burst) will go far to annoy and disperse the larvæ.

These remarks I take the liberty to send you, because they may induce some of those, whether chemists or gardeners, who have opportunities, to pursue the subject; as it may turn out that some of our most bland and even sugary vegetable substances may prove a complete defence against the attacks of various insects. I am, Sir, yours, &c. — *J. Main. Chelsea, July* 9. 1833.

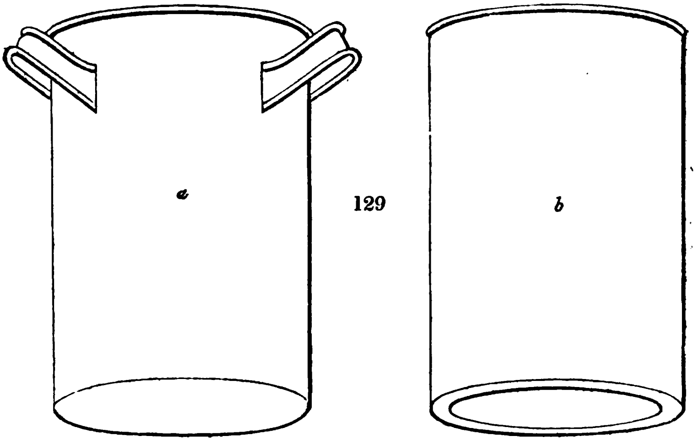
[*Soot destroys or drives off from all Plants of the Cabbage Tribe, from Pinks, and from other Plants, those common and voracious Grubs of Gardens, the Larvæ of the Moths of the Family* Noctùadæ.] — After being annoyed, almost to despair, by the ravages of this grub, I resorted to the use of soot, and thus applied it: — I laid it dry, and near an inch thick over the ground, and had it dug in. The plants were then planted from 20 to 25 in a row and so effectual was the soot, that, instead of losing 8 or 10 plants in one row, as I before had done, I think I did not lose more than that number in a bed of 200 or 300. In the grub's attacks on plants of the cabbage family, its habit is to eat some nearly and others quite asunder, a little below the heart: it often greatly annoys the farmers in their turnip fields. I have made use of the same remedy since, and have never found it to fail. Last summer I was troubled with the grub in a bed of pinks: I then made some soot water, and with it watered the bed well, and the bed was soon freed from the grubs. The precise mode of the soot's action on the grubs I cannot state; but I believe that the ammoniacal matter which it contains destroys some, and disperses the remainder. I shall gladly receive any information on this head. I have not found the soot injure the soil at all; and I name this because I had been told it would. — *W. Denyer. Residing with Mr. J. D. Parks. Dartford Nursery, Jan.* 18. 1833.

On the Habits of the Triphæ̀na (*Nóctua*) *prónuba* we have registered some facts in p. 504. Mr. Denyer's facts, besides their value in a gardening point of view, are an additional contribution to the history of the insect, as farther instancing its likings, and teaching us its dislike of soot. — *J. D.*

In a piece of ground attached to my present place of abode, which I did not take possession of until April, 1833, I sowed, so late as early in May, a small bed of onions. A plentiful crop arose from the sowing; but from then till now (Sept. 12.), the onion plants have kept withering until half are gone. As the herbage or upper part of the onion was in some cases wholly, in others partly, eaten through at the earth's face, it seemed clearly the work of insects; but as, on looking once or twice, I could not find any likely to have effected the mischief, and as I found the part of the onion bulb (very small, of course, from the late sowing) in the soil partly decayed as well as eaten, I concluded that the decay had preceded the insect's (of whatever kind or kinds) eating, and was consequently owing to some condition of the soil or season ungenial to the onions' health and welfare. However, since the soaking rains which fell on Sept. 1st, 2d, and 3d, I have observed the onions to disappear altogether at one end of the bed; and this sight prompted me, on Sept. 14., to dig the whole up. The bed was 7 ft. long by 3½ ft. wide; and, in this area, I found forty-seven grubs; most of them full grown, but some of them not quite so. I have imprisoned some of them in a pot filled with soil, in the hope of securing a moth or two from those of them which have attained the growth and feeding necessary to the condition of changing, and if the moths should be determined, by the entomologist to whom I may send them, to be not of the Triphæ`na (*Nóctua*) prónuba, I will take some opportunity of stating the fact. If they be grubs of the T. prónuba, they will prove that my ascribing, in p. 504., to them a decided preference to the plants of the order Crucíferæ or class Tetradynàmia, all which have more or less of a mustard flavour, requires a slight qualification. It deserves notice, however, that, if the grubs of this moth feed also on onions, onions are still strong-flavoured diet. — *J. D.*

The Insect called the Cuckoo-spit (*Aphróphora spumària*). — J. O. Westwood, Esq., in a communication to the *Magazine of Natural History* for Sept. 1833 (No. xxxv.), on the affinities and characteristics of an insect (*Délphax saccharívora Westw.*) which ravages the herbage of the sugar cane (Sáccharum officinàrum *L.*), and which, he states, is related to the insect called in Britain the cuckoo-spit, has given the following remarks on this latter insect, which, we conceive, will be worth being known by our gardening friends: — "Many of your readers have, doubtless, often observed in the spring a quantity of frothy matter upon various plants. This is caused by an insect nearly allied to the Grenada pest, and is commonly known by the name of the cuckoo-spit insect (Aphróphora spumària). In this instance the frothy matter is nothing else but the sap of the plant which the insect has pumped up into its stomach by its snout, and afterwards ejected; and we can easily conceive, if any plant were to be attacked by myriads of this insect, how great would be the damage which it would sustain; the operations of this insect, from the similarity in the structure of the mouth, being very similar to those of the plant lice: and your readers are all aware how exceedingly detrimental some species of the latter genus (A`phis) are in England; one of them, A`phis hùmuli, often occasioning damage as serious to the grower of the hop, as the Grenada insect does to the planter of the sugar cane." See the last Number (p. 443—445.) for a full account of the effects on vegetation of the sap-sucking of the aphides, and of their mode and course of performing it. On the insect called the cuckoo-spit (Aphróphora spumària) it may not be amiss to remark, that the perfect insects may, in September, be seen, devoid of all froth, and *in coitu*, on the surface of herbage, in provision, doubtless, of eggs for the next year's generation. When individuals not *in coitu* are met with, each skips off with a jump on the slightest molestation. Where the eggs are deposited, is a point we should ascertain. In spring, it is very astonishing to see a plant perfectly clean one day, and, three days afterwards, bearing a dozen balls of froth, each ball with an insect inside it; and this is not rarely the case. —*J. D.*

A Utensil for transplanting, in use in the Island of Guernsey. — Sir, A sight, in Vol. VIII. p. 667., of a flower transplanter invented by Captain Hurdis, has induced me to send you a figure and description of one (*fig.* 129.), in use among a few amateur florists in this island. Who its inventor is, or was, I know not; but I find it useful, and think it worth recommending.



a is a cylinder of tin (or sheet iron), which has a wire rim at the top, but a sharp edge at the bottom: it has two strong handles. *b* is also a cylinder of tin, and is made to slide freely into cylinder *a*, and is of the same length, and has a horizontal rim at the bottom, a quarter of an inch in width.

The application is the same as in Hurdis's transplanter (Vol. VIII. p. 666.), except in using the cylinder *b* to dislodge the plant, instead of his two plates and pronged instrument. A good size is 6 in. long by 4½ in. wide; but as they are very cheap, this size costing here 1*s.* 6*d.*, it is best to have three or four sizes. A small one, for transplanting seedlings, is very handy. I am, Sir, yours, &c. — *A Member of the Guernsey Horticultural Book Society. Guernsey, Jan.* 21. 1833.

An Instrument to enable any one to implant Plants into Beds and Borders without his trampling on the Soil, invented by Mr. Whiddon. — Sir, I send you a sketch (*fig.* 130.) of a planter which I some time ago invented for planting georginas and pelargoniums, &c., and which I do not recollect seeing among the implements figured and described in your *Encyclopædia of Gardening*. It is composed of two trowels; one for making the required hole in the soil, and the other, of semi-cylindrical form, for conveying the plant to the hole. The conveyer is made of sheet iron, and has a round piece attached to it by a hinge. When used, it is slightly compressed, and the round piece brought within it, and fixed upon a small catch opposite to the hinge; the plant is placed in the conveyer upon the round piece, and handed to the hole previously made by the common trowel, and by pressing the round piece, on which the plant stands, gently upon the soil, at the bottom of the hole, the round piece is forced off the catch, the conveyer springs open, and, by gently lifting up the planter, the plant is left in the hole; the trowel is then used for setting it upright, placing the soil to it, &c. The advantage I find in the planter is its rendering trampling upon the beds or borders unnecessary. I am, Sir, yours, &c.—*William Whiddon, Gardener. Chichley, Bucks, April* 30. 1833.

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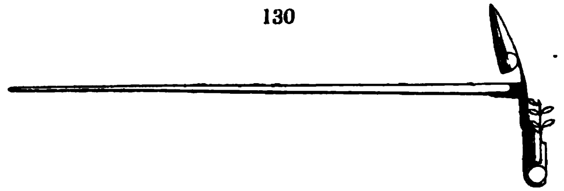

Double Pots for Marsh Plants, or for shading the Roots of tender Plants. — Sir, I herewith send you a plant of a little favourite of mine (Villárs*ia* renifórmis). The double pot I have planted it in, will be found well adapted to plants requiring constant moisture.

You will perceive that this double pot is formed by simply placing one pot within another, the latter being a size larger than the former (*fig.* 131.), and uniting them at bottom with a little Roman cement. The holes in the bottoms of both pots must be opened with a stick before the cement stiffens; otherwise, of course, the water in the inner pot could not escape. In the figure, *a* is the inner pot; *b*, the vacuity between the two pots; and *c*, the cement which unites them at bottom. By keeping the vacuity between the pots (*b*), filled with water, the

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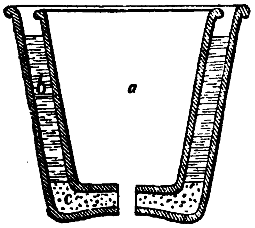


smaller or inner pot (*a*) will absorb moisture sufficient for the nourishment of the plant, provided the material of the pot be not too hard burnt; the water between the pots can at any time be emptied out, and the outer pot will then act as a shade for the roots of the plant in hot dry weather.

In my humble opinion, if a cheap and simple method could be found for shading pots exposed to the sun, we should not have so many sickly scorched-looking plants in the summer season. I am not aware of any pots having been made on the above principle. — *Thos. Blair. Stamford Hill, June* 22. 1833.

This mode of equalising the moisture and temperature of the exterior side of pots is, as far as our experience goes, quite new; and, certainly, it appears well adapted either for growing marsh plants, by filling the interstices between the pots with water; or delicate plants easily killed either by too much water or by neglect of water, such as Cape heaths, by using moist moss instead of water. Many persons find it very difficult to keep heaths in warm rooms, even during the short time they are in bloom, without either over-watering them, or keeping them too dry; Mr. Blair's pot, either with water or moss, would be an effectual remedy. — *Cond.*

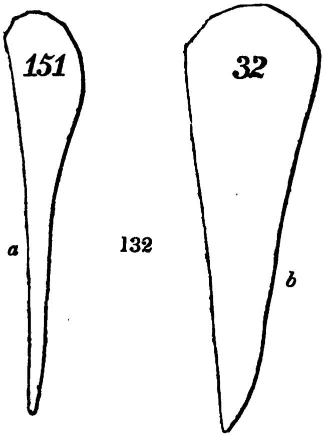
A mode of supplying plants growing in the open soil with water, during dry intervals of summer, practised by the Rev. Geo. Reading Leathes, of Shropham, Norfolk, deserves to be made known; and may, although it has nought of parallelism or likeness to Mr. Blair's, farther than its relation to supplying water, be described here. Soil dried to dustiness resists water; and not every assistant whom one may request to water the plants, which may be languishing in the garden, will take the patient and honest pains to give them the thorough soaking they require. When the soil about a plant or plants is dried to dustiness, the moistening it by watering requires that water be applied in a small quantity at a time, and repeatedly. The doing this occupies much time; yet you must either do this, or open with the spade, at the foot of the plant, a hole that will receive at once a larger supply of water; and this latter mode has the effect of leaving the gully hole, as it may be termed, and the earth which had been taken out of it, exposed to view; an offensive sight to those who have a passion for evenness of surface in the soil of their gardens. Mr. Leathes practises neither of these modes; but, as an equivalent to both, sinks into the soil, at the foot of the plant requiring water, a flower-pot, immersed to the half or whole of its height or depth, with its size proportioned to the quantity of water which the constitution of the plant may indicate it to need, and with the drain hole of the pot left open at the bottom. When each of the plants most liable to injury from drought has received the apposition of a flower-pot sunk at its base, the watering of all these plants is thenceforth effectible with an increase in the rate of despatch, quite or more than equivalent, in a drought of some duration, to the first expenditure of time and trouble: besides, too, the valuable satisfaction supplied to him who takes this trouble, of feeling conscious that every plant receives the whole, and directly to it roots, of the quantity you may please to pour into the sunk flower-pot; through the drain hole at the bottom of which the water passes at a rate determined by the degree of absorbency in the soil, without detaining him who supplies it until it has soaked away. — *J. D.*

A Tally for Aquatic Plants.—The kind of tally which I find the best for aquatic plants is formed of a piece of wood, about an inch and a quarter by three quarters of an inch, painted, except the bevelled top, which I rub with white lead (in the manner usual for marking-sticks), pretty thick; I form the number with a black-lead pencil. The length of the tally must be such as to allow four or six inches to stand above the water. It is useful to char the points of the tallies. — *H. T. Ellicombe. Vicarage, Bitton, near Bristol, Sept.* 9. 1832.

Tallies for the ordinary soil of gardens, have, with Mr. Claughton of Hasland, near Derby, lasted 25 years, as prepared thus:—Make them of thoroughly dried red deal; soak them for some time in linseed oil; dry them until the oil is dried off their surface, and paint them twice with verdigrise paint. —*J. D.*

Labels made of malleable zinc deserve to be tried. Zinc rolled in sheets, and to the thickness of a shilling, or rather less, is sold for roofs and many other purposes, at the Western Malleable Zinc Works, Keppel Row, New Road (near Fitzroy Square), London; and these sheets may, without difficulty, be cut up into labels. On one painted once with white paint, we last winter wrote, while the paint was wet, the words "*Glaúx* marítima," and on another, painted twice, the same words: both are now (May 13.), satisfactorily legible. The sheet zinc seems applicable to a great number of economical purposes. It is said to be superior to lead for lightness and durability, and to be sold at half the price.

Metallic Labels for Plants to be sent abroad. — Sir, Various forms have been given, in this Magazine, for labels for plants. I herewith send you a specimen (*fig.* 132.), made



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from the waste of tin-plate workers; so that the rate of expense required for any number of similar ones will be but little, and they will answer well for attaching to trees and plants about to be sent abroad, as they will not be liable to be defaced by dampness on the voyage, as labels made of parchment are: occasionally to the total obliteration of the name or number. By having tin labels cut (as *a*), or copper ones (as *b*), they may easily be attached to the plant by turning the narrowed end round the stem or branch. The polish on the tin and copper may be readily taken off, either by washing the tin or copper with a weak acid, cream of tartar, or an apple. The ink of the inscription, applied with a common pen, then sinks freely into the pores of the metal. It is then run over with boiled linseed oil, to protect it from being defaced. —*M. Saul. Sulyard Street, Lancaster, Feb.* 23. 1833.

This paragraph, and that above on the possible fitness of zinc for labels, have stood four months in type. Since they were put in type, Mr. Saul has written (on June 17th) to state that a correspondent of his (Mr. Thom) advises the employment of zinc plate in preference to tin plate, in making the labels recommended by Mr. Saul, who, however, still thinks that tin plate will well answer the purpose. Mr. Thom uses zinc labels for naming his growing fruit trees; they are made 5 in. long and 1½ in. broad, and have a hole perforated near each end, through which is passed a small cord by which they are attached to the tree. As cord is liable to rot early, and wire, if overlooked, constrains the growing branch, and becomes buried in the wood and bark which forms over it, it is a question worth being asked, will not some mode of attaching the labels like that figured in Vol. III. p. 470. be worth adopting, as well in application to trees to be packed for a voyage or long journey, as to trees that are growing? — *J. D.*

A Mouse Trap for Gardens or other Places. — I form my traps of articles which are at hand in most gardens. I take a large-sized garden pan, and place in it a small hand glass, such as is used in striking pink pipings, through which I

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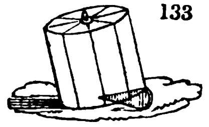

readily see, when the glass is down, if it contains a prisoner. When the trap (*fig.* 133.) is set, the edge of the hand glass is nicely placed on the curve of a thin piece of wood, and the bait, say a bean, is attached to the inward end of this piece of wood. I would add,

> " Keep traps to extirpate those pests, cats, mice, and rats;
> For where's the gardener who works to please the cats?"

— *Wm. Godsall. Hereford, Sept.* 29. 1832.

The mouse trap here described is, in principle, strictly identical with that described in Vol. VII. p. 219.; but the garden pan and the small hand glass seem more eligible and ready instruments by which to apply it.

In the transplanting of Trees, it is advantageous to place the respective Sides of each opposite those Points of the Compass towards which they had formerly grown. — Sir, Evelyn, in 1660, asserted that not one in a hundred of transplanted trees would miscarry if they were planted in the same aspect; that is, with that side which faced the south, again towards the south. In Germany this point is not lost sight of: here, I fear, it is little noticed, although it could be easily effected by marking, with a brush and a little whitewash, the trees, before removal, all on one side, say the south side. Mr. Maund, in a late number of *The Botanic Garden*, also gives his testimony in favour of this practice. I am, Sir, yours, &c. — *C. M. W. July* 29. 1833.

Cássia multiglandulòsa Jac. (*tomentòsa* Lam.) *thrives best in the open Air, in the following Circumstances:* — A fine individual of this beautiful shrub is now growing in the open air, in the garden of G. Graham, Esq., of Stoke Fleming, Slapton, near Dartmouth, Devonshire. It was planted in the spring of 1831, against an eastern-aspected wall, and in a rich light soil, and soon assumed a vigorous appearance. It has continued in flower ever since, and at Christmas last it displayed 150 corymbs of expanded flowers, and continues one of the greatest ornaments of the garden. It is at this present time 8½ ft. high; spreading laterally 5 ft.; it displays 230 bunches of flowers in full bloom. During the two winters it has been in its present situation, it has been protected by night with a reed covering, and the roots were covered about 3 ft. from the stem to the depth of 4 in. with old tan. — *J. Mitchell, Jun., Gardener. Slapton, near Dartmouth, Devonshire, June* 26. 1833.

The Cássia multiglandulòsa will thrive and flower satisfactorily, trained on the eastern or southern side of a wall, in any English garden, during summer, but not survive the winter, as in the above instance in Devonshire, and in the counties adjoining, where the mildness of the winters is a fact familiar to most. The following proofs of this are so truly of the gardening kind as to merit being quoted; they are taken from *The Panorama of Torquay, a Descriptive and Historical Sketch of the District comprised between the Rivers Dart and Teign ; by Octavian Blewitt ;* 2d edit. 1832, p. 55.

" The following lists of plants, grown as hardy exotics in the gardens of Torquay, afford a good illustration of the influence of this climate on the various productions of ornamental horticulture: —

" First List. — Agapánthus umbellàtus, Azàlea índica phœnícea, A. *l*edifòlia *Hook.*, Macleàya cordata*, Cèreus *p*hyllanthöìdes, *C*ássia capénsis, Heliánthemum cànum, H. formòsum, *C*ìtrus *M*édica, the lemon; *C.* Limònum *Dec.*, the citron; Ròche*a* odoratíssima, Dracocéphalum canariénse, Fúchs*ia* coccínea, F. grácilis, *G*ladìolus cardinàlis, Alonsò*a* lineàris, Hibbért*ia* volùbilis, *J*asmìnum grandiflòrum, *J.* revolùtum, Magnòl*ia* conspícua, M. obovàta, Eriobótrya japónica, Metrosidèros floribúndus, Maurándy*a* Barclay*àna*, *Petùnia* nyctaginiflòra, Pittósporum *Tobìra*, *R*ùbus *r*osæfòlius, *V*erbèna bonariénsis, *V.* *c*hamædrifòlia, Vést*ia* *l*ycioìdes.

" Second List. — Agàve americàna, *A*'ster capénsis [?], Bignòn*ia* capreolàta, B. Pandòr*æ* [*Técoma* austràlis]; Calceolària corymbòsa, Herbert*iàna*, and *p*lantagínea; *C*álla [Richárd*ia*] æthiópica, Matthìol*a* trístis, Cineràri*a* *p*opulifòlia, *C*ístus *r*òseus, *C.* incànus, Coronílla glaúca, Fúchs*ia* *l*yciöìdes, F. macrophýlla, F. macrocárpa [?], Alonsò*a* incisifòlia, *L*aúrus *Cámphora*, *L*ìnum arbòreum, Magnòl*ia* purpùrea, *M*arrùbium cándidum [probably *M.* Pseùdo-*D*ictámnus, or *M.* candidíssimum], *P*æòn*ia* *Moútan*, *P*ùnica *G*ranàtum, *S*álvia biflòra, *S.* purpùrea, *V*erbèna *c*hamædrifòlia, *Yúcca* *a*loïfòlia, *Y.* gloriòsa.

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* As a fact illustrative of the sentiment, " nothing venture, nothing have," or, in other words, that useful knowledge is gained by bold experiments, it may be worth the space to notice, even at this late date, that De Candolle, in his *Systema*, vol. ii. p. 92., states that, up to the time of his visiting the English gardens, the French usually kept this plant (whose old name is Boccòn*ia* cordàta *Willd.*) in glass-houses, where it grew but languidly: his words are: " hanc speciem in caldariis sæpius languidè servatam, lætissimè vigentem sub dio vidi in plurimis hortis Anglicis, et usque ad Norwich in horto Hookeriano." The season, however, at which he visited England did not enable him to observe and to state, that, although this plant is in England grown as a hardy one, its first shoots are almost every spring killed by frost. — *J. D.*

" The lists are inserted in separate forms, as they have been drawn up, the first from the garden of Miss Southcote; and the second from that of Mrs. Johnes. The plants in these lists are cultivated under the management of two very intelligent gardeners: the first of Mr. Thomas Ingram; the second, of Mr. John Gullet." [In case any one should compare our copy of the lists with the lists given in the *Panorama*, we had better state that we have substituted the modern names of the plants for the obsolete ones.]

" The citron mentioned in the first list has been cultivated with great success for fifteen years, at Myrtle Cottage, the residence of Miss Southcote. It has produced fruit measuring 24¾ in. in circumference: in 1824, two specimens of its fruit bore off the palm at the exhibition of the Horticultural Society in Regent Street, London. Pelargoniums, and myrtles of all kinds, grow luxuriantly in Torquay: the latter are frequently trained along the walls of houses, in different parts of the town, and require no shelter in the winter. The *V*erbèna triphýlla [Aloýsi*a* *c*itriodòra] also attains a considerable size, resembling the arbutus in the strength and power of its growth. At Ladyday, in the present year, 1832, we observed, on Park Hill, *L*áthyrus odoràtus, the sweet pea, which had stood the preceding winter, and was then showing for bloom. The orange flourishes in great beauty at Torquay; but as it has never been exposed during the winter, as the citron and the lemon mentioned in the first list, it cannot be included in the list of exotics growing in the open air. There can be no doubt that it would succeed; for, as Mr. Loudon has observed, the orange is much less tender than the lemon. The cottages in the neighbouring villages are frequently overgrown with roses, which run to a considerable height, and require no shelter in the severest winters. In summer evenings the water of Torbay flashes with the oar, as in tropical climates, and the effect produced by the phosphorescence of the waves, when beating against the walls of the pier, is truly beautiful." As this last sentence suggests warmth of climate, we have, although it says nought on plants, retained it in the quotation. — *J. D.*

An Accumulation of Facts on the Results of Experiments on acclimatising Exotic Plants suggested. — Sir, In the early volumes of this Magazine there were several articles on the subject of acclimatising plants: see Vol. I. p. 213. for one from the Horticultural gardens; Vol. II. p. 123. for one from Rusticus in Urbe; and at p. 239. one from the Botanic Garden, Edinburgh; and in Vol. III. p. 48. from Mr. John Street, at Biel, in East Lothian, who has given the names of a pretty large number of green-house plants, which had withstood the winter at that place. On reading these several articles, I was led to trouble you with the few lines in Vol. VI. p. 229., dated Clowance, Cornwall, soliciting "from some one or more of your numerous correspondents, a list, or lists, of such exotics, indigenous to warmer climates than our own, as, upon trial, had been found to endure our most severe winters without protection." However, as nothing of the kind has yet appeared in your pages, will you permit me once more to endeavour to draw the attention of your readers to this subject? as I cannot but think that, if a list of the kind were produced, it would be valuable.

It would be invidious in me to attempt to give even a hint on the arrangement of such a list or catalogue; as your *Hortus Britannicus* is a sufficient evidence that this is not wanted from any one. A very few pages in your Magazine would be sufficient for the purpose, and there are doubtless many of your readers who have been practically engaged in making experiments upon exotics by endeavouring to acclimatise them. It, therefore, only remains for them to send you the result of their experiments, by giving you the names of those they have succeeded in, with such particulars as may be deemed necessary respecting any particular plant or plants; as, namely, whether grown in the open ground, or trained against a wall, &c.; not omitting the county they are growing in, as there may be many that will stand out through the winter in our southern and western counties, that will not in the counties which lie north; and thus, under your arrangement, we might hope shortly to have the pleasure of perusing such a list as I conceive to be very desirable.

Should this article meet with a favourable reception on your part, and be in any wise instrumental in bringing others to the point in question, I shall be happy to become a contributor, by sending you a list of such acclimatised plants as have come under my observation in the western part of England, which might be incorporated with those you may receive from other persons. I am, Sir, yours, &c. — *T. Rutger. Shortgrove, Essex, August* 24. 1833.

In relation to this subject, see the articles referred to in the index to Vol. VIII. of this Magazine, under the title "Acclimatising half-hardy exotics to the seasons of Britain," and some remarks by E. B., in p. 245. of the present (IXth) Volume; and a consideration of Mr. Munro's suggestions, in the present Number, p. 555., on the causes of the particular disease in the larch, which he describes, may be applied to the present subject, in useful admonition to the experimenter in acclimatisation, he should make it his foremost object so to condition the plants which he may attempt to acclimatise, as to prevent too luxuriant growth, or, in the words of Mr. Munro, "compel them, as it were, to deposit only a moderate annual layer of alburnum, or wood, such as our year can ripen, and thus secure a firm and healthy nucleus for future depositions." — *J. D.*

The Result of planting a Group of Species of Cape Heaths in the open Soil and Air of Cornwall: connected more or less with the preceding Subject of Acclimatisation. — Sir, What E. B. has, in p. 245., said, in his concluding paragraph, on the causes and prevention of mildew in Cape heaths, respecting the trying of them out of doors in Cornwall, prompts me once more to intrude myself on your notice; and, although my practice does not exactly apply to the hint given, still it may perhaps be not altogether unacceptable.

During my residence in Cornwall, having a number of duplicates of Cape heaths for disposal, I was struck with the idea that a clump of them out of doors would have a novel effect, and that they, if they flowered well, would make a handsome addition to the flower-garden. I accordingly made choice of a situation; and, after excavating, and laying a thick drainage of brickbats, broken pots, &c., which I covered with dead fern roots and other matter, I covered it with peat earth to the depth of about 10 in., and in the month of April turned out my plants, many of which grew to admiration, and flowered beautifully the following autumn. Having succeeded thus far, and feeling fearful lest they should be disfigured, or, perhaps, killed, by the winter's frost, I proceeded to erect a temporary frame over them, with melon lights, old sashes, and feather-edged boards; the latter serving for the back, and nearly half of the roof, sloped backwards, and the old sashes for the front and ends, so that the whole, when finished, looked something like a little greenhouse. The lights were always off in mild weather, and also in frosty weather during the day when the sun shone. In the month of April the frame was removed, and during the summer the plants grew rapidly, presenting a most beautiful foliage, with flowers of a very superior character, and, consequently, were much admired by all who saw them. The species consisted of *Æ*rica coccínea, verticillàta, grandiflòra, cruénta, ignéscens, versícolor, mammòsa, costàta, tubiflòra, Archer*iàna*, curviflòra, concínna, exsúrgens, vestìta, cerinthöìdes, ventricòsa, báccans, uhria [? Ewer*iàna*], Sparrmánn*i*, spùria, and melástoma, with some others which I do not now remember. At the end of three years, when I left, the plants had arrived at a fine state of maturity, presenting a foliage delightful to the view, with a profusion of flowers in succession, according to their different seasons of flowering, far superior to any I had ever before, or have ever since, seen. I am inclined to think that very few of the Cape heaths will survive the winters in Cornwall entirely without protection: however, I know of one exception, in the *E*rìca scopària, which, although not possessed of so much floral beauty as many others are, is, when it has grown up conically to the height of 4 ft. or 5 ft., in the very delicate and beautiful appearance of its foliage, a truly interesting species: in this state it has a most attractive appearance, and has been much admired. A plant of this species has stood out for the last three winters, and when I saw it last autumn, it was in full vigour, and highly ornamental as a shrub in the place where it stood. I am, Sir, yours, &c. — *T. Rutger. Shortgrove, Essex, August,* 1833.

*A Mode of inducing Calliópsis bícolor, C. Atkinson*iàna, *and similar-habited Plants, to bear their Blossoms nearer the Ground than they usually do.*—Sir, As the Calliópsis bícolor [Coreópsis tinctòria], Atkinson*iàna*, and several species of the same and other families, are not desirable for massing out in small clumps, owing to the height they grow; this objection to them may be diminished by laying them down. In about the beginning of August sow seeds of them in pots, and place them in a moderate hot-bed; when the plants are of a size to plant out, plant them 5 or 6 in. apart, on the square, on any spare bit of ground. By the 1st or the middle of June, in the following year, most of the clumps will be cleared of spring decorations; then have any one of them which you wish to embellish with a golden hue prepared, and take up the plants of Calliópsis, &c., (most of which, by this time, will have attained the height of 18 in. or 2 ft., and be showing flower,) with balls. Select the tallest, or those as nearly of a size as possible; lay them down on the surface of the clump, on the spot where they are to be inserted; first, the highest on the circumference, with the tops extending an inch or two on the verge; then the small ones in the centre (or those of the same size, if you have them) with the tops lying in different directions alternately, or in one, it matters not, so as you make them them regular. Plant obliquely, and peg down those round the outside about 6 in. from the verge, and those on the inside 5 or 6 in. or more from their tops, according to the strength of the plant. In two or three days the tender tops will have an erect position; in two or three weeks they will flower in a flat mass from 10 to 14 in. high, and the laterals will continue to grow and flower until "winter comes on wi' its cauld icy coat." I am, Sir, yours, &c. — *George Thomson. High Elms, July* 1. 1833.

A Plant of Hydrángea horténsis in the rectory garden, Selworthy, Somersetshire, measured in 1832 forty feet in circumference. — *W. C. Trevelyan. Wallington, Jan.* 28. 1832.

Períploca græ̀ca, its Flowers should be used sparingly in Nosegays. — Perhaps so; as I have been led to conceive, that the blossoms contain some deleterious property, from my having observed the pavement under a blooming plant of Períploca to be literally covered with dead flies, of the species *Músca* doméstica, while a great quantity of the same species swarmed amongst, and settled upon, the blossoms. — *William Godsall. Hereford, Sep.* 29. 1832.

Snuff and Tobacco made from English-grown Plants of the Nicotiàna rugòsa and Tabàcum. — Sir, I have often been tempted to send you a letter on the subject of tobacco; but, seeing it taken up by others of your correspondents, I have hitherto as often abandoned the intention. The letter of E. S. (p. 121)., and the remarks thereon, have at last induced me to send you a sample of snuff of my own manufacture, from English-grown tobacco; but, as I am in the wake of others, I shall not inflict on you a lengthy epistle.

In 1830 I grew two species of tobacco, the Nico*tiàna* rugòsa and N. *Tabàcum.* After their herbage had been duly fermented, dried, and fermented again; being moistened, to that end, by sprinkling with a little new perry (this second fermentation is, as E. S. contends, indispensable to the attainment of the maximum of quality in the flavour, &c., of the herb), I found the former of a rank sweetish flavour, and fit for no other purpose than fumigation; for which ever since it has been successfully employed. Part of the N. *Tabàcum* I made into cigars, these were rolled too tight; part was cut up for the pipe, and the remainder made into moist snuff; both these last were pronounced, by better judges than myself, to be very good, and could in nowise be distinguished in appearance from what might be procured at the tobacconists'. The midribs of the leaves, after remaining a considerable time, and having become perfectly dry and brittle, were reduced to a fine powder in a mortar, and dried, to imitate high-dried Welsh snuff. This it does very nearly; but more especially that patronised by the Marquess of Anglesea, manufactured by a man of the name of Ranson, of Ipswich. Indeed, there is much less difference between this and my own, than between much that (going under the same name) is the produce of different makers. It is of this that I send you, herewith, a small quantity; I have none of the others remaining, and but little similar to that sent. I had purposed cultivating other kinds of the genus Nicotiàna, and went so far as to send for seeds; but I failed at that time in procuring them, and have since been otherwise too closely occupied to enter on further trials.

The seeds were sown in pots in a hot-bed, on the 20th of March; transplanted on the 30th April; due attention paid to "topping" (nipping off the tops as soon as the flowers show), "suckering" (picking out the incipient shoots of the axils of the leaves), "worming" (destroying, by the hand, a kind of grub that infests the plants, but of which I do not know the name), and protecting from slugs which devour it greedily, and make sad havoc with the leaves, if not carefully defended from their attacks. I gathered the N. *Tabàcum* from the 24th of July to the 7th of August; the N. rugòsa from the 7th to the 29th of the latter month. I am, Sir, yours, &c. — *J. C. K. Levant Lodge, Feb.* 1833.

The sample of snuff sent by J. C. K. we committed to the cognizance of a most experienced snuff-taker, who reports on it as far too defective in pungency to afford him pleasure or satisfaction in the taking of it. — *J. D.*

The Fruit of Strawberries preserved free from Grit, and the Attacks of Slugs, by covering the Soil under the Fruit with a Layer of the short Grass mown off Lawns. — As the fruit of the strawberry is, with many, a thing of consequence, the preservation of it from the several casualties to which, on its attaining maturity, it is liable, is, or ought to be, an object of as much solicitude: to point out a preservative from one or more of the evils which endanger it, will be my endeavour in the present communication. I generally grow the large sorts in rows from 20 in. to 2 ft. apart, and a considerable quantity in a single row between the box edging and the gooseberry bushes, which form the narrow border of the quarters. These distances I consider the best for Keen's seedling, Wilmot's superb, &c., the crop of which is as good in the fifth year as in the third, and better than that in the second. The small sorts, as the early scarlet, Duke of Kent's scarlet, the Roseberry, &c., may be grown with as much advantage on narrow beds, 3 ft. or 4 ft. wide, and if renewed every three or four years. In the case of the smaller sorts, they being so close together, the following method might be dispensed with, or, at least, it is not necessary; but in the large kinds above named, owing to the isolatedness of the rows, and the heaviness of the bunches of fruit, these latter lie on the soil, and, when rain falls, are covered with grit, and they likewise lie so convenient for slugs, that many are destroyed by them. To obviate these liabilities, I have tried several expedients, but none had the required effect, until it occurred to me this season that short grass laid between the rows would answer the purpose. This I have applied with perfect success, especially as to the grit. There is no gentlemen's place without the material at the time at which it is required for this purpose, and the application of it 2 in. or 3 in. thick does not consume much time. It is not only useful in the above instances, but it acts as a non-conductor of evaporation from the soil below, whether you water it artificially, or the more general rain administer the moisture: it also chokes most sorts of weeds, and destroys the vegetation of their seeds; and it may be taken off, or allowed to remain, after the crop is done. It is best to apply it in a dry time, before the strawberries begin to get ripe; when the slugs have sought shelter in less exposed situations; after which it forms so bad a path for them to slide along, that they cannot overcome the difficulty. If any should remain, a watering with lime-water, or urine (as Mr. Gorrie recommends), will extirpate them. The above may not be new to some gardeners, but, as I have never heard it suggested, nor seen it done, it may be to a few, if not to many. — *George Thomson. High Elms, July* 1. 1833.

The Earliness of Bishop's Early Dwarf Pea and the Early Frame Pea compared. — Sir, In this Magazine are many opinions on the merits and demerits of Bishop's early dwarf pea. In Vol. VI. p. 723., and Vol. VIII. p. 584., appear two very opposite statements concerning its earliness, as compared with that of the early frame: the one affirms that there were fifteen days in favour of the latter's earliness; the other, fifty-three days in favour of the earliness of the former. Such calculations are apt to mislead even the most wary; I thought it very strange if they could be both right. Having received some true seed of each sort, I marked the following dates, to satisfy myself on the subject. On Dec. 14. 1832, I sowed thinly, in 32-sized pots, Bishop's early dwarf, and the early frame on the 24th of the same month; I kept them both in a cold pit until about the middle of March, when I turned them out. I planted Bishop's early dwarf with balls entire, 9 in. from a wall on a south aspect, and 20 in. apart in the line; of the early frame each ball was made into six or seven divisions, and planted in rows across a border, but not opposite the other: it had no shade. I could gather a dish from the early frame on the 20th of May; when I could not obtain so much from twice as many of Bishop's early dwarf on the 26th; notwithstanding the latter had, from being so near the ground, a superiority of temperature, both day and night, of five or six degrees at an average. The Bishop's early dwarf comes into bloom, and drops its blossom, nearly as soon as the early frame; but it is longer in filling its pods: however, in consequence of its dwarfness and productiveness, it is without an equal for forcing in houses, pits, or frames. I am, Sir, yours, &c. — *George Thomson. High Elms, July* 3. 1833.

A Note on the Planting of Potatoes. — Persons have whole acres of potatoes rotting, about Dublin, every spring. The cause is assigned to every thing but the right thing. The Irishman's mode of planting the potato is, to cover the seed potatoes with dung in the drills, to keep them warm, and to spread out the cut seed in the barn, to keep it from rotting; and both acts have just the opposite effect with early potatoes. In planting potatoes in the end of April, or the month of May, it is immaterial whether the seed be planted under the dung or above it, in the drills; for at that season the potato will grow freely either way: but earlier in the season, as February and March, it is of the utmost importance that the seed should lie on the top of the dung, for then it lies in a situation warmer, by several degrees, than it does when under it; and besides lying dry, it gets the benefit of the atmospheric air, which cannot penetrate through the cold wet dung to the seed, when the seed is placed beneath it. The air about Dublin, when not freezing, is mostly about 40° to 45°, and sometimes to 50°, through the winter and spring months: this air presses through the earth as far as the potato that lies in the dung; but does not penetrate to the seed under it. Air, heat, and water are the causes of vegetation; and the air the main spring. The drills being dug with the spade, when filled in with the dung and earth, are much looser than the space between, and answer as a receptacle for all the wet that falls; the seed lying so long dormant, and in such a cold wet bed, has no other chance but to rot. The potatoes likewise, after being cut, should not be spread out to dry, but laid up in a close heap for about a fortnight before planting. The air at that early season is too cold for them fresh cut, and damages the seed before it is put into the ground: when laid in a heap they will not rot. But where is the advantage of planting potatoes of any sort earlier than the middle of March, for vegetation does not commence in them till then? It is the height of absurdity to blame the salt water, or to deem them to have been damaged in the ship: when, if we do but think a little, the real cause may be found easily enough. I am, Sir, yours, &c. — *James Hart. Dublin, April* 27. 1833.

[Our correspondent has subsequently pursued this subject in the following communication.]

The kinds of potato which, on being planted here, miss growing are imported from Scotland every spring; as it seems that the offspring from them, as grown here, degenerate so much as to be incapable of producing a second crop: they are called Scotch pink eye, and Scotch apple. In the pink eye, and I dare say in the other kind also, the lower part of the potato is too ripe; whence I would recommend that at least two cuts be taken off from the lower end, or the end next the stalk, of each potato, and applied to the feeding of pigs, or otherwise appropriated, for they are quite unfit to occupy ground with; as every one of them rots, leaving vacancies in every drill. Let the cutting of the seed be done out of hand, as quick as possible, and the whole laid up in a close conical heap against the wall of the house. They are cut in the air here, which condition has an almost instantaneous bad effect on them, for when they lie flat on the floor they in the course of forty-eight hours get a blue colour, and become quite soft, although by gathering them together they will get firm again, and partly come to a white colour: their vegetative power is, however, gone; pitch them to the dunghill. Mr. Mallet has about an acre of the Scotch pink eye planted here this spring, from seed that I purchased on the quay of Dublin, out of a ship direct from Campbelton; and the crop (except a part of the field that had been planted with about 2 cwt. of seed that had lain flat on the floor not more than forty-eight hours before I detected the mischief) is a good one, say with a miss of not more than one quarter: a clear proof that the Scotchman does not steep his potatoes in salt water to prevent their growing.

I think it may be possible that the potato from Scotland may not every year be too ripe; but, to make sure work, the bottom cuts and top ones should be kept separate. When the pink eye is planted immediately after being cut, the cuts rot in the ground, the same as those of it do which have been spread out on the floor. When laid up in a heap, as above recommended, in the course of a fortnight they will either begin to sprout, or their bud will begin to swell; and, when they do this, you may plant them with safety: about a ton may be laid in a heap, only so pack them that as few of them as possible may be on the floor. It appears to me that the Scotch pink eye would do better, and come sooner to market, if not planted among the dung; for I see it loses time before its roots get properly established in the earth. I, in consequence, think that more benefit would accrue if the dung were dug or ploughed into the ground when the potatoes are setting off in growth. Then drill the same as for peas or beans with a hoe, or draw a shallow drill with the plough, and draw the earth in, covering with the hoe, so that a small ridge may be formed over the seed, but do not beat it down. I am speaking on the assumption that the whole of this work be commenced in the beginning of March, as indicated in my previous communication. If all this be observed, the early potato will be plentiful enough about Dublin next summer. They have this year (1833) failed not only in acres, but in forces [? scores] of acres; and persons here have, this season, had to replant all the ground with some one or other of the native kinds of potato: this is not the first year that they have missed here, but it seems they never before missed so completely as in this year. — *James Hart. Drumcondra, Dublin, July* 10. 1833.

A Norfolk Tankard Turnip grown in Ireland to the Weight of Thirty-six Pounds Avoirdupois. — Sir, As a matter of curiosity, and to show you that we have both a fine climate, and a productive soil (indeed I do not remember ever seeing an old abbey or cathedral situated otherwise), I may mention that a turnip of the Norfolk tankard variety was pulled in this demesne, which weighed no less than 36lbs. avoirdupois. — *J. Elles. Palace Gardens, Armagh, Dec.* 4. 1832.

The propagating of Cabbages by Slips and Cuttings (p. 226.). —The first shoots only are applicable to such a purpose; the second run to seed. (*Maund's Botanic Garden*, June, 1833.) This fact, one of some consequence, is stated by Mr. Maund, on the cover of his number of the *Botanic Garden* for September, to be supplementary to the information on this subject in p. 126, 127., and to have been communicated to him by the author of that article, Peter Kendall, Esq.

A Melon Plant grown by the Author of the "Domestic Gardener's Manual," in soil which did not suit it (a puny plant, as we are informed), sent its roots through the wall of the pit, into a small cistern of water adjoining, and there produced what Dr. Keith calls the "fox-tail root." This is nothing more than what we should have expected with any other dicotyledonous fibrous-rooted plant, tree, or shrub, similarly circumstanced; but our ingenious and philosophic correspondent thinks it a proof that the melon is an aquatic or amphibious plant. — *Cond.*

Tagètes *lùcida*, a half-hardy annual, the herb of which is delightfully fragrant when dried, is found to give vinegar very nearly the same high flavour as tarragon. This fact, which may be useful to those who, like ourselves, are fond of tarragon vinegar, was stated to us by W. Wells, Esq., of Redleaf, and we have since proved it ourselves. — *Cond.*

REVIEWS.

Art. I. *Verhandlungen des Vereins zur Beförderung des Gartenbaues in den Königlich Preussischen Staaten. Transactions of the Society for the Advancement of Gardening in the Royal Prussian States.* 4to, 2 Plates. Vol. V. Berlin, 1829.

(*Continued from* p. 96.)

10. *Some Observations on the Culture of Alpine Plants.*
By Dr. Link.

Plants are called alpine when their natural habitations are where trees cannot exist, such as the tops of mountains, or very high degrees of latitude. They are, however, often found in various low situations, where they flower and produce their seeds as well as in those higher regions; but this is always referable to the agency of wind or water, which convey the seeds from their original places of growth to the lower parts of the country. These plants will grow very well in a bed in the garden, the soil of which should consist of one part peat, one part leaf-mould, and two parts pasture ground, mixed with a little sand: the principal object of their culture, however, is moisture. The alpine plants, although they are in winter chiefly protected by snow in their native places, can stand very severe frosts, to which they are often exposed before the snow falls, or after it is melted. They are also not much injured by the heat of the sun. In their natural situation they are continually exposed to extreme changes; from severe frost during the night, to the burning rays of the sun and to tempests during the day. Artificial rockwork for the cultivation of these plants is of no other use than for ornament. The cultivation of alpine plants in pots is in so far preferable as it is easier to supply them with those advantages which they have in their wild state: in winter they may be removed to a cool moist place, instead of exposing them to the dry frosts; in summer they can be kept moist, which is the most essential part in the cultivation of alpine plants.

11. *On the Method to increase the Production of Vines, and to protect them from Spring Frosts.* By Baron Kottwitz.

The vine is manured with bullock's blood in autumn, and the shoots are laid down and covered with dry leaves; by which they are protected against severe frosts, and also in the beginning of spring against those fine days which occasion their early vegetation. They are pruned in spring after the leaves are removed.

16. *Some Observations on the Chestnut* (F*à*gus Cast*à*nea). By M. Hansen.

The wood of the chestnut, he says, is of little value for firing or for building; but it is very durable in the ground, as much so as that of the best oaks. If used as casks for wine, it gives the liquor not only a beautiful colour, but also an agreeable flavour.

17. *Description of the Imperial Garden at Nikita.* By Dr. von Steven.

This garden was laid out in the year 1812, during the time of the governor Duc de Richelieu. It is about half a German mile long and 500 fathoms broad, along the shore of the Black Sea. It was first designed for plants from warmer climates only, but now fruit trees are also cultivated in it to supply the increasing population.

18. *Observations on the Growth of Plants during different Times of the Day.* By M. Meyer, Director of the Botanic Garden at Königsberg, in Prussia.

To ascertain in what degree the different times of the day promote the growth of plants, M. Meyer occasioned a scape of Amarýllis *Belladónna*, well known to grow very rapidly, to be measured thrice a day, — at six o'clock in the morning, twelve at noon, and six in the evening. The thermometer was also observed, and the results are exhibited together in a table. This table shows that the plant grew in the day almost twice as much as during the night, which M. Meyer ascribes to the influence of light and warmth. He observes that the increase of the plant was proportional to the height of the temperature; but in what degree the light contributed to the growth could not well be ascertained. The entire deprivation of light would have lowered the temperature, and also injured the health of the plant, in which case the result of the observation could not be depended upon.

22. *Some Observations on the Growth of Trees.* By Professor Reum.

After he has described his method of transplanting seedlings, &c., he recommends hard-shelled seeds of trees to be put in pots of sand or mould during the winter, which prepares them for germination when sown in the following spring.

23. *On O'xalis tetraphýlla as an ornamental Plant, and as a Vegetable.* By M. Witzel, Gardener.

This plant is used for ornament, especially for edgings. It is also very good used as sorrel, and the bulbs are almost like potatoes in flavour; the leaves, when mixed with New Zealand spinach, give it a peculiar and pleasant acid flavour. The plant is very easily cultivated; it grows almost in any soil, and increases its bulbs abundantly. If planted in a frame in spring, it may be obtained earlier.

24. *Extract from the History of the Gardens at Wörlitz.* By M. Schoch, Gardener.

The gardens at Wörlitz are about six English miles in circumference, on a plain which is variously subdivided by canals for pleasure-boats. The whole, however, is subdivided into five different parts. Around the castle it is chiefly laid out in the English style, and contains a great number of various North American trees and shrubs, which were among those first introduced in Germany. In the years 1770—1774 another part was laid out on one of the islands in the garden, where a considerable piece of rockwork is erected in the form of a grotto. This is surrounded by fig trees, which in winter are bent into the interior of this grotto for protection against frost. In the centre of this mass of stones is a cavity for an artificial volcano, which, when displayed, affords a beautiful spectacle by the reflection from the artificial lake and canals. There is also a nursery for the supply of the gardens.

26. *Account of Dreienbrunnen, near Erfurth.* By Dr. Volker.

This place has long been distinguished for the extensive culture of vegetables. The kitchen-gardens are variously crossed by trenches supplied with water by three large reservoirs, for the purpose of watering. This is performed with a sort of shovel, with which the water is spread over the beds. On the sides of these trenches water cresses are grown abundantly. Fruit trees are not much cultivated in these gardens, as they are considered injurious to the growth of the water cress.

27. *On the Cultivation of Orange Trees.* By M. Mertens, at Herrnhausen.

He re-pots his trees every sixteen or twenty-four years. The soil consists of two parts cow-dung, two parts loam, three parts rotten horse-dung, and three parts of the old soil from the pots. They are occasionally watered, and fresh cow-dung is laid on the top of the soil every year as manure. The trees are pruned in September in preference to the pruning in spring, by which three or four weeks are lost in their growth.

30. *Gledítschia hórrida recommended for Enclosures.*

Young plants should be planted, one foot apart, in well-trenched soil. The first year they should be shortened to eight or twelve inches; in the second year to eighteen or twenty-four inches; and so on gradually to the height required. The lateral branches, if not required to fill up vacancies, are shortened to six inches. The hedge should be kept clean, and occasionally watered when newly planted.

31. *Description of a flowering Zàmia hórrida at Cassel.*

By M. Schelhas.

This plant flowered in the year 1827, and proved to be a male, the anthers of which are sessile on the under side of the scales.

33. *Report on grafting Pears on Sórbus aucupària.* By M. Floss.

These trees grow on sandy soil, where pear trees do not prosper, which induced M. Floss to graft them with pears, in which he succeeded perfectly. He observed further, that one or two branches of the stock should be left, to hinder the graft from growing too rapidly, because in that case the graft grows much thicker than the stock, and is easily broken by the wind; but when branches of the stock are allowed to remain for two or three years, this does not happen. He also observed that the pears obtained from trees treated in this manner seem to keep longer, although they are not so well flavoured as when grafted on the wild pear stocks.

39. *Description of a Method of growing Alpine Plants, used in the Garden of Dr. Wild, at Cassel.*

On a site of 8000 square feet he cultivates about 700 different alpine and forest plants. In five of the beds a stratum of gravel is laid at the bottom, which is covered about 2 ft. in thickness with peat. The rockwork is also planted with alpine plants. The clumps in some places are planted with various evergreen shrubs, and surrounded by an edging of *Gentiàna* acaúlis, *Verónica* fruticulòsa, &c. The uppermost clump is 27 ft. higher than the lowest; and from that elevated situation the neighbouring country may be seen to great advantage. This communication is followed by a list of plants cultivated in the garden.

40. *Meeting of the Society, July* 27. 1828.

Baron von Kottwitz recommends shortening the young shoots of seedling almonds in autumn, which, he thinks, stops the sap sooner, and thus renders them safer against the frosts; they also begin to grow sooner in spring. He also mentions having raised almond trees from cuttings of the roots.

41. *Experiments made by M. Hartweg to ascertain which Sort of Wood is most fit for Stakes, in which he shows how long the different Sorts lasted.*

Class 1. Resinous woods, such as *P*ìnus, &c., after being seven years in the ground were not at all rotten. 2. Robín*ia*, &c., were about one sixth or one half rotten in that time. 3. *U*lmus, &c., were entirely rotten. 4. *A*cer, &c., rotten after five years. 5. *S*àlix, &c., after four years. 6. *C*árpinus, &c., after three years.

42. *Meeting of the Society, Sept.* 7. 1828.

M. Furstenau manures his cabbages, before they close their heads, with sheep-dung round the stems, which occasions them to grow very large and firm, and also to keep better.

M. Ohlendorf, at Hamburgh, communicated to the Society his observations on sowing plum stones. When perfectly ripe, they are, without being divested of the flesh, sown in beds in the autumn. The same is practised with cherry stones, with which he succeeds equally well. M. Lenné observes that the principle of sowing stone fruit is, not to let the stones become dry, wherefore they should be either sown directly when gathered, or preserved in moist sand during the winter; and M. Otto adds, that he has observed that stones from fruit which are injured by maggots never germinate.

45. *On the Origin of Weeping Trees.* By Mr. William Anderson, Curator of the Botanic Garden at Chelsea, near London.

"I have never seen a printed report on the manner in which the different varieties of trees have been discovered; for example, the weeping ash. The cause of this neglect may be, that persons finding such varieties either do not examine their origin, or keep it secret, from personal interest. If, therefore, this subject be not better known in Germany than in England, the following observations may prove not uninteresting to your Society. Fascicles or bundles of shoots are often observed on trees, which resemble a bird's nest at a distance; but, when examined, they prove to be a cluster of small twigs. Such bundles are observed on different trees, but more frequently on the white or common birch tree (*Bétula álba L.*). In the year 1808 I observed such a bundle on a *Cratæ`gus* (*Méspilus*) *Oxyacántha*, and grafted young thorns with them, which, in two or three years, produced beautiful weeping branches. About the same time I observed such a bundle on *Ulmus* campéstris, eyes of which were budded on healthy young trees, and every one produced a long hanging shoot. According to this observation, it would be very easy to procure a large collection of drooping or weeping trees. Our gardeners, however, multiply no species so numerously as the *Fráxinus* excélsior var. péndula; which variety often retains its hanging character when raised from seeds. We possess several such trees, of about 10 ft. in height, which were raised from seed of the original tree, obtained, in 1780, from a nurseryman, who found it a few years previous to that, in the neighbourhood of Newmarket, in Cambridgeshire."

47. *Experiments made by M. Toussaint, Nurseryman at Berlin, to ascertain what Influence different Soils and Manures have on Annual Plants.*

M. Toussaint says a satisfactory result of this object could only be expected after experiments conducted through several years; but, as one summer (the given time to answer this prize question) is too short to answer this question with certainty, he considers the following results only a proof that it would be worth while to carry these experiments to a greater extent. For his observations he chose melon plants (Barbaresken, a sort of cantalupe), a variety which, by its size and abundance of juice, is most fitting to show minutely what influence different soils and manures have upon it; which, however, could only be correctly ascertained in the course of time, as it must be considered that the seeds were taken from fruit produced in a different soil from that in which the experiment was made. The seeds were chosen as much as possible of equal weight and size. Fresh dung from pigs, cows, and horses, and loam, and decayed wood, were the ingredients with which the experiments were carried on. These were mixed with leaf mould in the following proportions: firstly, one third of leaf mould, and two thirds of one of those manures; secondly, one third of one of the above manures, and two thirds of leaf mould, which gave ten different mixtures, in which the seeds were sown. The temperature was also ascertained by a thermometer fixed in the middle of each frame. Two fresh and two old seeds were sown at an equal depth in each light, from which two plants were afterwards removed into another frame, filled with common garden soil only. The progress and result of this experiment is minutely shown in a table, and here it is only necessary to mention that twenty plants from old seeds produced eight fruit more than twenty from fresh seeds, and that the fruit of those plants which had not been transplanted weighed, on an average, 2 lbs. 2 oz.; while those from plants which were transplanted weighed 2 lbs. 8 oz. on an average. Finally, M. Toussaint wishes that such experiments may be carried on by others, and a garden appropriated to this purpose, to ascertain the best and most durable soil and manure for those plants. [Mr. Figgans's communication, p. 567., on the results of growing the cucumber and the melon in heath mould, is congenial with the above experiments.]

The result of this experiment, respecting the flavour, was, that the best-flavoured fruit were produced in the mixture of two thirds leaf mould and one third horse-dung; the fruits produced in the other mixtures were less delicate, although superior in flavour to others produced in the common garden soil. The least-flavoured, which were sweet, but mealy, were those produced in the mixture of two thirds cow-dung and one third turf.

49. *Report upon the Experiments on the Impregnation of Plants.*

By Professor Henschel, at the University of Breslau.

M. Henschel gives a detail of his observations on natural impregnation, and on the effect produced on the seed or fruit, when parts of the organs of plants are hindered from performing their functions. Secondly, he treats on artificial impregnation, and its results; thirdly, on the impregnation with pollen of other plants, not belonging to the same genus, &c. &c; fourthly, he details experiments with what he calls "modified impregnation," or with pollen of the same, or from other plants, mixed with a substance of a different nature; fifthly, he treats on impregnation with foreign substances, as carbon, &c. &c. These experiments are minutely described, and a view of their results given in tables.

51. *Meeting of the Society, Nov.* 2. 1828.

M. Langmatz gave an account of the advantage of wormwood for producing potash. On a place of about a square rod he obtained 108 lbs. of herbage, which after it was burnt gave 11 lbs. of ashes, and from this he extracted 5¼ lbs. of rough potash; while from 100 lbs. of birchwood he only procured 4½ lbs. of ashes, and 1000 lbs. of this ashes only make 219 lbs. of potash. This experiment shows how advantageous it is to grow wormwood for making potash; the more especially as it grows fast, and on any soil.

54. *Account of a Black Carnation.*

Extract from a letter of the Society for Fruit-culture, at Gruben. "M. Ulrici raised a perfectly black carnation from seed, which he called the Mohren König (Negro King). He had a very large collection of carnations; but, since it has been dispersed, this black variety has been apparently lost. The Society wishes therefore to know if it does not exist somewhere, as M. Ulrici was very liberal in distributing whatever rare varieties he possessed."

58. *On an Insect* (*Tenthrèdo erythrocéphala*) *which is very injurious to the Species of the Genus Pìnus, and particularly to Pìnus Stròbus; with a Figure of the Insect.*

59. M. Bosse succeeded in preserving a bulb of Amarýllis revolùta, which was much rotted, by cutting off the wasted part, without injuring the roots; on the wound he put powdered charcoal, and kept the plant in a dry stove, until the injured parts became dry, when he covered it with wax, leaving an opening in the centre for the leaves to grow through. After being repotted it was put in a warm frame, where it soon began to grow, and attained its former size.

60. *On the Impregnation of the Species of Passion Flower.*
By M. Bosse.

He approves of impregnating with the pollen of different species or varieties; in this case they produce fruit more freely than when impregnated with their own pollen; he has also, by this cross impregnation, originated several varieties.

61. *Observations on the Character of the Regular and Natural Styles of laying out Gardens, and their Application.* By M. Sckell, Inspector of the Royal Gardens in Bavaria.

The different styles in which gardens are laid out may be distinguished by the two appellations, the regular and the natural. The first, and oldest, is also called the French style, from its having been so much in use in that country, and also for the great perfection to which it was brought during the time of Louis XIV. and the great genius Le Nôtre, wherefore all gardens laid out similar to those of Versailles, St. Cloud, Marly, St. Germain, Meudon, Sceaux, Chantilly, the Tuilleries, and the Luxembourg, are called French.

Another kind of regular style, a subdivision of the former, is the Italian garden, which, although regular, differs greatly from the French. Italian gardens are much in combination with architecture and sculpture, and are, it seems, more designed to increase the beauty of these, than to form a work of art in themselves; which is quite the reverse of the French gardens, where architecture and sculpture are only used for embellishing the garden.

A third subdivision of the regular style is the Dutch garden. Hedges and trees are cut into different forms, the grass plots are divided into curious figures, and the walks are laid out, or rather paved, with variously coloured stones, glass, shells, &c., which gives the whole more the appearance of mosaic work than a garden. This plan has, however, long ceased to be adopted. There are also two different classes in the natural style, the Chinese and the English: the idea of the latter has probably arisen from that of the former, as they only differ in the Chinese introducing wild and terrific scenes in their gardens, while by the English only the beautiful and charming are admitted. The love for this natural style has spread very rapidly on the Continent, and many well-formed French gardens have been transformed into English ones, without considering how far regular forms were necessary for that effect, which, in combination with magnificent architecture, these gardens were originally intended to produce. All writers on the art of gardening agree that the regular style is in certain cases not only applicable, but essential; and this circumstance induced M. Sckell to give his opinion on the question, "Under what circumstances can or should the regular style be used?"

He first refers to Hirschfeld's *Theory of the Art of Gardening*, p. 139., who, speaking of the application of the English style, says, "There are, however, cases in which symmetric gardens make an exception, as gardens round the houses in towns and suburbs, near palaces, in public places and promenades," &c. &c.

The regular form of a sublime building, which has in all its parts the character of grandeur, is so much in contrast with natural scenery, that these two objects cannot be combined without a medium. With a few modifications, and for the same reason, the regular style should be chosen for promenades near towns (which are to be distinguished from public gardens), in consequence of the regularity of the situation, and for the convenience of the public. A third case, where, though regular gardens are not always necessary, they are mostly applicable, is, in front and behind houses in towns and suburbs, where the place is generally too limited for natural scenery. Whether there are other cases except those above mentioned, where the regular style could be used with advantage, M. Sckell does not venture to decide; but a refined taste, when every circumstance is considered, will easily determine.

(*To be continued.*)

Art. II. *Hortus Woburnensis; a descriptive Catalogue of upwards of Six Thousand Species of ornamental Plants cultivated in the Gardens at Woburn Abbey; with numerous illustrative Plans for the Erection of Houses for Forcing, Green-houses, &c., and an Account of the Management of them throughout the Year.* By James Forbes, A.L.S. C.M.H.S. &c., Gardener to his Grace the Duke of Bedford, K.G. 8vo, 440 pages; twenty-six lithographed prints. London, 1833. Medium paper, 16*s.*; royal paper, with proof prints, 1*l.* 10*s.*; royal paper, with proof prints coloured, 2*l.* 2*s.*

"The first part of the work contains a descriptive catalogue, in abbreviated terms, of the generic and specific characters of upwards of 6000 plants, such as are best adapted for the green-house, plant stove, or decoration of the pleasure-ground, or such as appear the most interesting to the botanist and amateur in the British flower-garden; the descriptions of which, although much compressed by being confined within a small compass, will render considerable assistance in the identifying of the numerous genera and species. These distinguishing peculiarities will, it is hoped, characterise the arrangement of the plants in this work from those of any other catalogue. The accompanying *Glossary* will elucidate the various abbreviations in the catalogue part of the work.

"The second part comprises the plans of the parterres, pleasure-grounds, green-houses, plant stoves, heathery, and other erections, with a description of the different subjects enumerated, the soil, and the general management best adapted for the growth of the Cape, Botany Bay, and other exotic plants.

"The third part is confined to the plans and details relative to the kitchen-garden department, with lists of the fruits cultivated; and comprises numerous designs for the erection of forcing-houses, culinary pits, &c., with an account of the materials best adapted for their erection, and mode of heating by hot-water pipes, &c.; and lastly, the general routine of culture pursued throughout the year in the forcing department."

This indication of the scope and office of the book is copied, letter for letter, from Mr. Forbes's "preface." The catalogue of plants is arranged according to the system of Linnæus. We copy two or three instances, as specimens, of the descriptive particulars attached to the genera and species: —

Systematic Name.	English Name.	Form of Leaves, &c.	Col. of Flow.	Month of Fl.	Native Country.	Yr. of Introd.	Soil and Propagation.
SA'LVIA, SAGE or CLARY. Cal. tub. with 2 uneq. lips. Cor. rin. Ger. 4-cleft. Sty. cur. Stig. clov. Seeds 4.							
fúlgens. B. R.	Cardinal.	rug. cord. ov. cren. hairy.	*sc.*	1. 12.	Mexico.	1827.	G. ♄. ——
ROSMARI'NUS, ROSEMARY. Cal. 2-lipped. Cor. ringent, helmet bifid. Stam. curved. Seeds naked.							
officinalis. R. S.	common.	lin. sess. whit. ben.	*pa. bl.*	1. 4.	S. Europ.	1548.	H. ♄ *cuttings.*
IPOM'ÆA, IPOM'ÆA. Cal. 5-part. nak. Cor. campan. 5-plicate. Caps. 2-3-celled, with 2 seeds in each.							
insignis. A. R.	magnificent.	palm. 5-lob. up. ov. or. cord.	*p.*	6. 8.	E. Ind.	1814.	S. ♄. *cl. cuttings.*
CONVO'LVULUS, BIND-WEED. Cal. 5-cleft. Cor. bell-shaped, plaited. Stig. 2. Caps. of 2-3-cells, with 1-2 seeds in each.							
arvénsis. Br. Fl.	small.	sagitt. acut. Pedun. 1-fl.	*ros.*	6. 9.	Britain.....		H. ♃. *cl. Sandy loam.*

These specimens are copied from the original; and we have chosen them, because their subjects are doubtless known to most or all of our readers. Some of the words in the last column, the width of our page did not allow room for.

Now follows the subject of the second part of the book, namely, "the pleasure-ground," and the various objects of interest which the pleasure-ground includes. As several of these are illustrated by engravings, we will collect the titles of the engravings first, and then we shall be sure not to omit to mention them, which would not be just to a work whose illustrations must have cost by far the greater part of the expense of producing it. Plates or prints: — 1. South-west view of Woburn Abbey; a lithograph by Ross. This is the frontispiece to the volume. 2. A titlepage, engraved by Weddell, in which the park gate and the entrance to the park are introduced as a vignette. 3. A general plan of the pleasure-ground. 4. Her Grace's flower-garden, in front of the private apartments; parterres in front of the libraries. 5. Parterres in front of the sculpture gallery. 6. Ground plan, front elevation, and section of the green-house. 7. Ground plan and section of the plant stove; ground plan and section of a pinery heated by one boiler. 8. Plan, elevation, and section of the heath house. 9. Plan of the parterre for hardy heaths. 10. The menagerie. 11. Outer entrance to the menagerie; inner entrance to the menagerie. 12. Children's gardens. 13. Drakeloc pond, the Chinese temple, and evergreens. 14. Henry VII.'s cottage, at the extremity of Aspley Wood. 15. Labyrinths at Aspley Wood. These are the objects of which illustrations are given; and they are of course the subjects of particular description in the annexed letter-press, in which, besides these, the following objects connected with the pleasure-ground are also more or less noticed: — covered walk, 1342 ft. long; sculpture gallery, green-house, house for camellias, green-house for pelargoniums, riding-house, tennis court, stable courts, Chinese dairy, larders, rockwork, willow garden, American bank, garden for hardy heaths, site for Cape heaths when out of doors, collection of hollies, rosarium Britannicum, grass garden, menagerie, wired compartments of menagerie, keeper's apartments; canary &c., room; alders and birches, poplars, species of ash trees, elms, temple and platanuses, American oaks, arbour, different species of the genus *P*inus, porter's lodge. Besides these subjects, the following, still in the department of the pleasure-ground, are treated of in distinct chapters, as, indeed, are some of the subjects already mentioned: — Construction of the green-house, 2 pages; Management of the green-house and conservatory, 11 pages; Construction of the plant stove, 3 pages; Management of hot-house plants, 7 pages; Management and propagation of the Cape heaths, 11 pages; The evergreens, 3 pages. 64 pages, in all, are devoted to the description of the pleasure-ground, and the objects in it.

In the third part of the book, which treats of the kitchen-garden, there are illustrations of these subjects: they are numbered in sequence to those of the pleasure-ground. 16. General plan of the kitchen-garden. 17. Ground plan of the hot-houses, back sheds, &c.; front elevation of the hot-houses, &c.; view of the garden entrance; view of the gardener's house; south-east view of the gardener's house. 18. A diagram exhibitive of the details of the structure of the rafters, bars, sashes, and glazing employed in the glass structures for cultivating plants. 19. End elevation of the fig or citron house and back shed; section of the fig or citron house, end elevation of the vinery or peach-house; section of the peach-house; section of the vinery. 20. Ground plan, section, and end and front elevations of the pinery. 21. Ground plan, elevation, and section of the pine pit. 22. The same of succession pine pits. 23. The same of the early forcing pit. 24. The same of the later forcing pits. 25. The same of the house for the culture of the mushroom. 26. Plan of hot wall and back shed. The subjects of these engravings are, of course, the subjects of the descriptive letterpress appended to them, of which there are 141 pages. Besides, however, the subjects which the above titles bespeak, the following are treated on: — Materials best adapted for hot-house roofs; comparative cost. On heating hot-houses, &c., with hot water; on the formation of peach-house borders;

on planting the peach-house; pruning, &c., of the peach tree; forcing the peach tree. The same considerations relative to the management of the vine; culture, propagation, and management of the fig tree; of pine-apple plants, melons, and cucumbers. On forcing the cherry, strawberry, rhubarb, the potato, asparagus, and the sea-kale.

These transcripts of titles, &c., will fully indicate the scope and contents of the book; and it remains only for us to give our opinion on its merits both in respect to design and execution. We regret to say that we do not approve of either, and we shall give our reasons for this judgment.

The work consists of three parts; the catalogue, the description of the plates, and the treatises on culture. The catalogue (which Mr. Forbes appears to set most value on, and which occupies more than half the volume) is in the manner of *Galpine's Compendium*, with this difference, that, in the latter work, the generic characters are all placed together, whereas, in that of Mr. Forbes, they are distributed among the characters of the species. Now, whatever may be the merits of this plan, we cannot conceive the utility of applying it to a local catalogue. As a general catalogue, the *Hortus Woburnensis* can have no pretensions. Or, supposing the plan of this catalogue a desirable one, why should the purchaser of it be obliged to pay for, and carry along with it, in the same volume, upwards of 200 pages of descriptive or didactic letterpress, accompanied by numerous folding plates?

A catalogue is a volume which the gardener is supposed to have in continual use, and therefore it should never be encumbered with extraneous matters. All that we could wish to say as to the execution of this catalogue may be inferred by any tyro in botany, by comparing the generic and specific characters in the eight lines quoted from it (p. 602.). If this be not satisfactory, we shall explain what we allude to, in detail, in a future Number.

To the descriptive part of the work we shall offer no objections, except that we do not see any advantage in having the plates larger than the size of an octavo page; while there is this manifest objection to a larger size, that it increases the bulk and price of the work.

With respect to the treatises, we have perused them with attention, and confess that we cannot see the propriety of connecting them either with the catalogue of plants, or the description of the plans. If the modes of culture at Woburn, and their results, had been minutely and accurately given; for example, if it had been stated when each house in each year was begun to be forced, what heat was kept up at different periods, when the articles were fit for use, what was the quantity produced, and the cost of fuel, labour, &c., &c., we should have had valuable statistical information. Instead of this, however, we have merely a general treatise on each particular article cultivated; and, to show that these treatises are of the most common-place kind, we shall quote that on sea-kale, because it is one of the shortest in the book; and the reader may judge for himself, by comparing it with the same subject as treated of in any gardening book which he may happen to have by him.

" SEA-KALE.

" This is reckoned one of the most valuable esculent vegetables that is indigenous to Britain that we have got, and, when accelerated by artificial heat, it is considered by many to be equal, or but little inferior, to the asparagus. The shoots of the sea-kale, when blanched, are extremely useful in culinary dishes during the winter months, and are, at that period of the year, a luxury at table.

" Various methods have, in consequence, been resorted to for bringing it to perfection at an early season, when there is a scarcity of other vegetables. But the more general and equally successful mode adapted for its cultivation is, by covering the beds or ridges, on which the sea-kale is growing in the natural ground, with hot stable dung, or a mixture of dung and tree leaves. The beds selected for this purpose should consist of strong crowns, whose roots have got well established in the ground. Those crowns that were planted the preceding spring, if well supplied with water in dry weather, while striking root, will be fit for accelerating the ensuing winter.

" The decayed leaves and stems of the plants should be all cleared away, and the surface of the beds stirred up and cleared from weeds and filth; and then a covering of old tan, leaf mould, or coal ashes spread over them: then, over each crown, place a large flower-pot, or such pots as are generally made purposely for the blanching of the sea-kale. The holes in the pots must be all stopped, in order that the steam arising from the fermenting substances may not get in to injure the tender shoots when they are in a growing state. As soon as the plants are covered with the pots, a layer of the fermenting materials should be spread over all the bed, to the depth of from 15 to 20 inches; which thickness should be regulated according to the state of the weather, but observing not to make the bed too strong, in case of injuring the crop, or drawing up the shoots in a weak state. If a temperature around the plants of from 55 to 60 degrees can be kept, it will be quite sufficient for bringing this vegetable to perfection in the course of about three weeks after the beds are made up, and which may be had at the table in December, and its season prolonged until they appear in the open ground; and if covered with coal ashes or turf mould, it will considerably tend to blanch the shoots, and accelerate their growth." (p. 439.)

Here we have not a word of the manner of cultivation practised at Woburn; and, indeed, for anything that appears in Mr. Forbes's volume, there may be no sea-kale grown there at all. The same will apply to the other treatises in this part of the work, such as those on asparagus, rhubarb, potatoes, kidneybeans, cherries, &c.

On the whole, we are reluctantly compelled to state, that we consider Mr. Forbes's work as a very unfortunate attempt at book-making. Had he confined himself to a simple list of the scientific names of the plants, this might have been got into a dozen pages; fifty pages would have included the whole of the descriptive matter, and also all the engravings; and the treatises, or didactic part of the work, would, on all accounts, have been better dispensed with. We should then have had a useful guide to Woburn Abbey, which might have been sold for 5*s.*, instead of the present large and high-priced book.

Having great respect for Mr. Forbes both as a man and a practical gardener, we can assure our readers that it has given us great pain to make these remarks upon his work. We are determined, however, that no considerations of private friendship shall prevent us from doing what we conceive to be our duty to the public.

ART. III. *Catalogue of Works on Gardening, Agriculture, Botany, Rural Architecture, &c., lately published, with some Account of those considered the most interesting.*

PAYNE, J. H., Author of the "Cottager's Guide for the Management of his Bees:" The Apiarian's Guide, containing practical Directions for the Management of Bees upon the Depriving System. 8vo, 80 pages, 2 copperplates. London, Simpkin and Marshall, 1833.

The following is a copy of the first paragraph of the author's preface: — "Having written the *Cottager's Guide for the Management of his Bees* upon the depriving system, which has been printed under the direction of the Suffolk and Norfolk Apiarian Society, for gratuitous distribution among the cottagers, I am induced, at the particular request of several apiarian friends, to enlarge the above little work; and to give, in addition, a description of Nutt's newly invented hive, and other practical remarks in bee knowledge, resulting from nearly forty years' close observation." The results are digested into 17 chapters, whose titles are: — "1. Situation of an apiary, and directions for placing the hives; 2. Directions for purchasing bees; 3. Materials of which hives should be made, and the improved cottage hive described; 4. Method of placing the small hive, box, or glass upon the improved cottage hive, by which means fine honey may be obtained without destroying the bees; 5. Proper time for taking away the box, and how to expel the bees from it; 6. Method to be pursued in case a swarm should leave the hive, after having commenced working in the box; 7. Method of uniting second and third swarms; 8. Manner of uniting swarms and old stocks in autumn; 9. Manner of feeding weak stocks, and the time most appropriate for this operation; 10. Food proper for weak hives; 11. Enemies of bees, and means of overcoming them; 12. Directions for hiving swarms; 13. Description of the knife for cutting out the combs; 14. Remedies, proposed as cures, for the stings of bees; 15. Means of preventing the bees from being stolen, especially in the country; 16. Method of dislodging bees from trees or buildings, and putting them into hives; 17. Description and a figure of Nutt's newly invented hive for obtaining the honey without destroying the bees. The plates exhibit hives and boxes of different forms, &c.

Murray, John, F.S.A. F.L.S. G.S. &c. &c.: A Manual of Experiments, systematically arranged, illustrative of Chemical Science. 3d edition. 12mo, 149 pages; with figures of twenty instruments for experiments. London, 1833. *5s.*

Some of our correspondents have recently urged the necessity of founding our knowledge of the processes of Nature on an acquaintance with chemistry. It may be, that this little volume may avail those who, under a conviction of the truth of this statement, are endeavouring to attain a knowledge of this science. We copy the list of the book's contents, that they may judge: — "Remarks on the new nomenclature; theory of definite proportions; definition of gases, and method of preparing them; experiments, systematically arranged, illustrative of chemical science." These experiments occupy sixty-four pages. "Tests for the detection of metallic poisons; mineral waters and their contents; nomenclature: vocabulary of technical terms; tests, or reagents required in chemical analysis; chemical apparatus requisite; descriptive list of some particular apparatus." The author thus speaks of his own work: — "It is presumed that the following pages may encourage the growth of chemical knowledge in the tyro of its science. Experiment is an inviting field, and chemistry is a science of experiment. The time is now past for speculation and hypothesis either to claim or receive attention..... This manual has been written with a view to invite the student of nature to a very lovely, interesting, and useful branch of knowledge, by softening down the asperities and difficulties of chemical research; and it is hoped the end in view may be accomplished."

Johanne Lindley, Phil. Doct., Professore Londinensi, Auctore: Nixus Plantarum. (Approximations of Plants). MDCCCXXXIII. Londini, apud Ridgway et Filios. 8vo, paginæ xxiv.

Those of the students of the natural affinities of plants who are familiar with Latin, will find this work one of high interest and real value to them. As premonitory to its scope and office we present the following extract from the same author's *Introduction to the Natural System of Botany*, p. xvii.: —

"As plants resemble each other more or less in a multitude of different respects, it is impossible to indicate all their affinities in a lineal arrangement. The consequence of this is that while the orders themselves are really natural, the same title often cannot be applied to the arrangement of them in masses. For example, Cupulíferæ and *B*etulíneæ are obviously connected by the most intimate relationship, and, as collections of species, each of them is perfectly natural; yet one of them stands among apetalous plants, the other among achlamydeous ones; hence the two latter groups are artificial. In fact, it appears from what we at present know, that no large combinations of orders are natural which are not founded upon anatomical differences; thus Cellulàres and Vasculàres, Exógenæ and Endógenæ, Gymnospermous and Angiospermous Dicotyledons, are natural divisions; but Apétalæ, Polypétalæ, Achlamýdeæ, and all their subordinate sections, are entirely artificial."

"Characters which are purely physiological, that is to say, which depend upon differences of internal structure, are of much more value than varieties of form, position, number, and the like, which are mere modifications of external organs."

In the present *Nixus Plantarum* the author illustrates more fully the ideas committed to notice in the above quotations; and instances several incongruities which have been introduced into published systems of natural affinities by too great a dependence on characters not physiological, especially those derived from the hypogynous, perigynous, and epigynous position of the stamens. The author conceives that, by the application of the physiological characters, with the subordinate aid of the analogies which may occur in the contingent ones, the orders may be hereafter profitably and satisfactorily distributed into sections; an event which would facilitate the acquisition of a knowledge of plants when studied by their natural affinities.

The exhibition of these tendencies or bearings in the received orders or groups of plants is the business of the book, where the orders are gathered together into a system of circles of affinity. The circles are not severally composed of an unvarying number of orders, but the author has found that in the associations which are most natural the number five is most usual; and hence is attained an approximation in botany to the quinary circular arrangement of the celebrated Mac Leay in other departments of nature. The distinguished botanist, Fries, had previously shown that a series of circles, more or less definite, will very well represent the relative affinities of plants; and Dr. Lindley, in this his *Nixus Plantarum*, has made practical application of a corresponding idea. The work must be forthwith examined by every one anxious to attain proficiency in botany.

Castle, Thomas, F.L.S. (of Trinity College, Cambridge, M.R.C.S. &c.): A Synopsis of Systematic Botany, as connected with the Plants admitted into the Pharmacopœias of London, Edinburgh, and Dublin; accompanied by a Planisphere, showing at one view the class and order of the medical genera, according to Linnæus and Jussieu. 4to, 17 pages. London, 1833. 4*s.* 6*d.*

In the preface the author states that "the intention of this synopsis is to represent, in a concise and plain form, the present state of systematic botany, as connected with certain medical plants, namely, those only which are acknowledged by the *Pharmacopœias* of London, Edinburgh, and Dublin. With a view to the above, I have drawn up an outline and partial description of the three received systems: the Linnæan artificial, the Linnæan natural, and the natural system of Jussieu. In the first is given an explanation of each class, &c.; the number of plants belonging to every order; their time of flowering pointed out by figured references to the month; their native soil; their duration, as being annuals, biennials, perennials, shrubs, or trees; and, lastly, in foot-notes, the different names by which they are called in various authors. As the characteristics are given in the third part, I have only explained the general meaning of the Linnæan natural orders." The planisphere is a most elaborate production; it is constructed on the principle of a geographical clock: the central revolving sphere bears two circles; the inner one the Linnæan classes, the marginal one the orders; and around its orbit are three fixed concentric circles; the first containing illustrative genera, the next the names of Linnæus's natural orders, the outermost one the names of those of Jussieu.

Lance, Edward Jarman, Agriculturist and Land Surveyor, Lewisham, Kent, Author of the "Golden Farmer," and several parts of "Baxter's Library of Agricultural and Horticultural Knowledge:" The Cottage Farmer; containing plain Instructions for the Management and Cultivation of Land divided into suitable Allotments, so as to be made beneficial alike to the Labourer and the Landlord. Pamphlet, 8vo, 30 pages, 2 plates. London, Dean and Munday, and Ridgway, 1833. Intended for distribution amongst the labourers who have field-gardens, or small plots of farming ground; and dedicated to the Agricultural Employment Institution.

A most cheap shilling's worth. The principles advocated in, and argued on facts contained in, the work are, that an increased application of the knowledge of the sciences which acquaint us with the processes of nature, and with the structure and physiology of natural bodies, added to an increased application of manual labour, will, in farming and gardening especially, enable us to excite the resources of nature to such an increase in the production as will well repay the increased outlay of attention. The author dwells much on manures; and the greater fitness of this or that kind, according to the soil to which it is to be applied: he enumerates several available kinds of manure, and urges the scrupulous accumulation and determinate application of every atom of manure of every kind. We think that the kinds of plants which he recommends to the cottage farmer's attentive and diligent cultivation are those best worth his attention; and that the author's hints to him for the fullest appropriation of the crops, and of all his means, when produced, are worthy regard and observance. "Part ii.," or chapter ii., has this title: — "Hints for the farmer who wishes to be independent, and to satisfy all the wants of a family from off the land he cultivates; showing, also, how little land is wanted for that purpose." The title of "part" or chapter iii. is: — "Hints on the employment of the poor, and the want of a better knowledge of nature's laws; or theory of agriculture: in accordance with the principles of Lord Kames;" whose writings are so much regarded by Mr. Lance, that he has prefixed an exquisite lithograph of that author to (and it is worth the price of) his pamphlet, in grateful acknowledgment, as Mr. Lance states, of "having had his mind directed into an enquiry on the constituency of earths, and of vegetable food, from reading the works of this truly great man." In the second plate, which seems to be one used in Mr. Lance's *Golden Farmer*, there are figured the "female bloom of the hop," "male bloom of the hop;"

"hydatid, or fluke or flounder, generated in the liver of sheep," three figures; and the "Háltica némorum, or jumper of the woods, or turnip fly," of which there are three figures.

ART. III. *Literary Notices.*

LADIES' Botany, a popular Introduction to the Natural System of Botany, after the model of Rousseau's *Letters on Botany,* by Dr. Lindley, is advertised "to be published in November next, in one volume, 8vo, illustrated by numerous plates."

The third part, comprising the *Vándeæ,* of the letterpress of Dr. Lindley's *Genera and Species of Orchideous Plants,* is announced as being ready; also part the second of lithographic illustrations, from the sketches of Francis Bauer, Esq. F.R.S. L.S. &c., of Dr. Lindley's *Genera and Species of Orchideous Plants,* containing ten drawings on stone. This work is to be completed in four parts, in imperial quarto, price [we presume, each part] 30*s.* coloured, and 15*s.* plain."

Labiatarum Genera et Species, or a description of the genera and species of the plants of the order Labiàtæ; with their general history, character, affinities, and geographical distribution; by George Bentham, Esq. F.L.S. Parts ii. and iii., price 5*s.* each, are in a state of forwardness.

Of Sowerby's *Small Edition of the English Botany,* containing figures and descriptions of the plants of Great Britain, arranged according to the Linnæan method, a number is now published "every alternate Saturday." (See Vol. VIII. p. 714. for an exhibition of the plan of the work.) Twenty-seven numbers, at 1*s.* each, are now published.

Of Baxter's *British Flowering Plants,* containing a figure and a description of one species in every genus of British flowering plants, fourteen numbers are published. (See Vol. VIII. p. 715. for the details of the plan of the work.) A second edition of the letterpress of the earlier numbers is begun; the descriptions are much improved and augmented.

The first number, price 2*s.* 6*d.*, of *The Bordered Edition of Maund's Botanic Garden,* was published in August last. The four subjects which occupy one plate in the usual edition are here separated; and each subject is surrounded by an ornamental border, in the ornaments of which the rose, the shamrock, and the thistle occur; and, with its border, occupies a 4to. page. The whole work is to be republished in this form.

Of the *Irish Gardener's and Farmer's Magazine,* the first number, price 1*s*., is to be published on the 1st of October, 1833; and the work is to be continued on the first of every month. It is to be conducted by E. Murphy, A.B., Member of the Geological Society of Dublin, and late acting Secretary to the Horticultural and Arboricultural Societies of Ireland, &c. &c.; assisted by scientific and practical persons.

The third volume of Prince's *Pomological Manual* is in a state of great forwardness. — *M. Saul.*

The Tropical Agriculturist, a practical treatise on the cultivation and management of various productions suited to tropical climates, by George Richardson Porter, has been recently published. It is reported on as a work of real value to possessors of property in the East and West Indies, to planters, colonists, settlers, and others interested in the products of tropical climates. The work is in one volume 8vo, and is illustrated by 45 botanical plates: its price a guinea.

Dried Specimens of Marine Plants, principally collected on the coast of Devonshire, carefully named according to Dr. Hooker's *British Flora*, are prepared by Mrs. Wyatt of Torquay, and sold by her in volumes, each including specimens of 50 species. The first volume is ready, and the second is to be so soon after Michaelmas: the volumes are entitled *Algæ Damnonienses.*

Mr. Donald, of the Goldworth Nursery, near Ripley, Surrey, has just issued a sale catalogue of the contents of his rich arboretum, and of "a select collection of hardy perennial herbaceous plants." The catalogue occupies three pages of a large sheet, to be sent by post, and includes, owing to the minute type employed, a surprising store of species and varieties, especially of trees and shrubs. We have never seen so accurate a catalogue as this.

A Catalogue of Flower Roots, Plants, &c., grown, in 1833, by the Rev. J. Tyso and Son, Wallingford, Berks, has been sent us. It is well arranged and richly furnished. We called on Mr. Tyso, when passing through Wallingford, some weeks ago, and find that he intends, in a short time, to give up his pursuits as a commercial florist to his son, and to confine himself in future to amateurship and his clerical duties.

A Selection from the general Catalogue of Hardy Ornamental Trees, Shrubs, and Herbaceous Plants, has been just published by Messrs. Buchanan and Co., of Camberwell. "As an assistance to those who may wish to form a small but select collection, the most desirable and distinct species of each genus are marked with a *, and those possessing superior individual excellence with a †. The prices appended are for good plants that will make an immediate display."

MISCELLANEOUS INTELLIGENCE.

ART. I. *Domestic Notices.*

ENGLAND.

THE Antheum at Brighton. —We noticed the project of this building in our last (p. 464.), and expected to have the pleasure of seeing it advancing towards completion, when visiting Brighton as a part of our tour. Before our arrival there, however (which was on the 12th of September), it had fallen down, from its defective construction; and we only saw its remains from the outside of the square enclosure which surrounds it. Mr. Busby, architect and engineer (the inventor of the mode of heating by hot water, described p. 38.), who resides near the spot, a most ingenious and intelligent man, gave us the following account, which he first published, with some slight variations, in the *Brighton Herald:* —

" The antheum consisted of a dome, with twenty cast-iron ribs, forming ten elliptical arches, nearly 170 ft. in span : the lower parts of these ribs, for about 12 ft. high, were completely enclosed in substantial brick piers, with a strong circular wall extending between all, except three spaces, which were left to communicate with the principal entrance. The ribs were placed edgewise, and were about 3 ft. wide at the bottom, and 2 ft. at top, with an average thickness of about 2 in.; being, in fact, thinner in the centre, but considerably thicker at the edges, which were ornamented and strengthened by rounded mouldings. Each rib was cast in six or seven pieces, and the junctions were effected by strong flanches and screw-bolts; there were also smaller subsidiary ribs between the principals, but reaching only about one third of their height. The ribs were connected with each other by light cast-iron purlins, extending from one to another, so as to form a series of concentric rings at various elevations. The centre of the dome consisted of a strong circular casting, 7 ft. in diameter, against which all the ribs abutted, and to which they were all firmly attached by screw-bolts. The height of the dome, measured within from the base of the ribs, was about 60 ft.; and the internal diameter of the circular wall, 164 ft.: this constituted the whole of what is technically called the framing. There were also numerous wrought-iron ribs, about the ordinary size of a green-house sash-bar, filling up the intervals between the main and subsidiary ribs; but these were merely intended to receive the glazing, and contributed little or nothing towards the support of the principals.

" An iron erection of the colossal dimensions of the antheum was found more difficult to fix than had been previously expected; and it became necessary to call in the aid of an immense scaffolding, or more properly, building of solid timber, framed in the most substantial manner; not merely to sustain the weight of the ribs, but to preserve them unbent and accurately in their places until the whole should be connected. This was performed with great precision. The ribs were, in fact, as true as the brass meridian of a globe; and, if they had kept so, notwithstanding the imprudent flatness in the centre, I have not the slightest doubt, would have stood for an immense period: but, unfortunately, diagonal braces, which should have been adopted throughout, were entirely omitted. This oversight became manifest to the superintendent some time since, and he proposed to remedy it; but no provision having been made in the ribs to receive the braces, and the additional expense being considerable, the contractor, who was not so well aware as he should have been of the risk he ran, refused to provide them. The scaffolding was afterwards removed, and the ironwork came to its full bearing; when, immediately, the ribs began to swerve from the perpendicular, and slowly bent into serpentine lines: so that, when viewed directly edgewise, every arch (consisting, as before described, of two opposite ribs) presented the appearance of a double circumflex, or elongated figure of 8. Thus all the ribs were obviously bending sidewise, and not edgewise more than was the natural consequence of such lateral flexure. The bending continued to increase; when, at length, some of the purlins were observed by the workmen to crack: and then, the general strain becoming greater than the elasticity of cast-iron could sustain flatwise, the whole centre of the fabric fell in, breaking with a report like the running fire of light artillery; giving out, at the same time, such a galaxy of immense sparks, as to produce the effect of a powerful flash of lightning.

"Notwithstanding this catastrophe, the wreck, I am happy to say, is not so great as might have been expected: more than half the ironwork is still in a perfect state, and the brickwork is nearly undamaged. If, therefore, the matter be publicly taken up (as an object so attractive to this distinguished town should be), advantage may be taken of the present mishap to remedy the defective construction: and what has at first appeared a fatal misfortune, may afford the means of perfecting that which, in a complete state, would certainly be one of the most extraordinary and magnificent structures in Europe. I am, Sir, yours, &c. — *C. A. Busby.* 1. *Stanhope Place, Brunswick Terrace, Sept.* 5. 1833."

Though we do not consider a dome of any kind as the most suitable form for growing exotic plants, either from the temperate or tropical regions, yet we should have been glad to see the antheum completed, for the sake of its projector, Mr. Phillips. When, however, it is seriously contemplated to grow house plants in quantity together, and to a large size, a square or parallelogram will be found the most advantageous ground plan, with a ridge and furrow roof, supported by cast-iron pillars, which might be raised as the plants advanced in size. Such a house, whatever might be its extent, would be a mere repetition of two or three very simple parts in straight lines, and would, therefore, cost very little; at least, not one half per superficial foot so much as a dome of such proportions as the antheum. A dome is calculated to have a very grand appearance when seen from without; and also, if comparatively empty, when seen from within: but, when filled with plants, the domical form, and the circumstance of its being without interior supports, pass for nothing. Any one will be convinced of this who has had an opportunity of examining the exterior and interior of the dome at Syon; or of that recently taken down at Britton Hall. Circular houses, composed of a succession of roofs, supported by pillars, such as we recommended for the Birmingham Botanic Garden (Vol. VIII. p. 420. and 422.), are totally different constructions, and are scarcely more expensive than the square or parallelogram which we recommend; while their interior effect is equal to that of any dome whatever. Let it not be forgotten, that the vastness of the hemispherical roof is totally lost in the interior, when the house is entirely or even in part filled with trees. — *Cond.*

The Collection of Plants of the late A. H. Haworth, Esq., who died suddenly on Aug. 24., consisting chiefly of succulents and bulbs, is to be disposed of while the season permits safe removal. The collection consists of above 160 species of *A*loë; 330 Mesembryánthemum; 25 Cotylèdon; 20 Cacàlia; 11 Rulíng*ia*, or *A*naeámpseros; 21 Hawórth*ia*; together with numerous species of Crássula, Mammillària, *S*èdum, *S*empervìvum, Echevèr*ia*, &c. &c.; amounting in the whole, including duplicates, to nearly one thousand pots. We believe that an offer for these has been accepted, The bulbs, and also the herbarium, the insects and Crustàcea, and the library of books on natural history, are also to be immediately parted with. These are, severally, very extensive, and treasures indeed! Our friend Mr. Main, 6. Union Row, Queen's Elm, Chelsea, has the charge of the disposal of them. — *Cond.*

Instruction in the Sciences which explain the Processes of Nature in Farming and Gardening. — In p. 610. we have noticed the *Cottage Farmer*, by Mr. Lance; and we shall here quote a paragraph from the close of his pamphlet: — "The writer of this essay proposes to instruct young men in the sciences of geology, chemistry, botany, and the elements of all the physical sciences; which will elucidate points necessary to be known by farmers, and combine these branches with the practical knowledge which now conducts the agriculture of the country; and to use that science as an addition, and in subordination, thereto. In agriculture, the sciences are all conjoined; they cooperate to produce bread, and open a boundless field to enquiry. The botanist finds himself indebted to the chemist; the chemist finds problems, in searching into the physiology of plants, which the botanist must solve. The zoologist, the geologist, the mineralogist, the meteorologist, the entomologist, are so linked together, that they cannot proceed far without the assistance of one another; and whatever tends to cement the sciences, and bring their various branches into contact, will much facilitate the progress of agricultural knowledge." An agricultural college, for the instruction of young men in the theory and practice of farming, is, in consequence of the above opinions, proposed to be formed by Mr. Lance. Let it be established; it can do no harm, even if it does no good. We fear, however, that the time is gone by for establishing institutions of this sort. The farmers of this country are, and ever have been, too ignorant to make use of the knowledge which is every day set before them; and they are too much prejudiced to benefit even from example. We have lately had abundant evidence of this during a seven weeks' tour. There is nothing to be expected from them but by the education of their children in their infancy, and at parochial schools. As we believe Mr. Lance to be ardently desirous of improving the agriculture of the country, we would entreat of him to consider whether the most effectual mode would not be to direct all his efforts towards inducing the legislature to establish a national system of education, such as that proposed by Mr. Roebuck in the last session of parliament, of which he will find an account in the *Examiner* for August 11. — *Cond.*

A Rural Temple, intended as an Ornament for Parks and Pleasure-Grounds, has been devised and manufactured by Mr. John Mathews, architect, of Frimley, Surrey. It is stated that "the materials of which it is composed are principally hazel rods, and that the architectural relations of its compartments are executed with mathematical exactness; that this temple, and others of a variety of plans, may be made of any dimensions; and that they are quite portable, and will endure for a century or two."

Virginia Water, and the adjacent Grounds. — These the king has ordered to be opened to the public in general. We had an opportunity of viewing them during the course of our late tour; and though, from the extent of the grounds, and the broad expanse of the water, the former afford a healthy rural walk along the margin of the latter, yet, taken in a picturesque point of view, they have nothing to boast of: and, as to gardening or planting, these have the characteristic poverty of all the other grounds belonging to royalty, with the sole exception of the shrubberies at Kew. — *Cond.*

Indian and Chinese Plants. — The Directors of the East India Company have presented to the Society of Apothecaries, for their garden at Chelsea, a valuable collection of plants and seeds, natives of India and China. The plants, a few only of which died on the voyage, came over in square boxes, enclosed in frames glazed with the shell of the pearl oyster.

ART. II. *Floricultural and Botanical Notices of new Plants, and of old Plants of Interest, supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; each monthly Number containing eight plates; 3*s*. 6*d*. coloured, 3*s*. plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; each monthly Number containing eight plates; 4*s*. coloured, 3*s*. plain. Edited by Dr. Lindley, F.R.S., Professor of Botany in the London University.

Sweet's British Flower-Garden; each monthly Number containing four plates; 3*s*. coloured, 2*s*. 3*d*. plain. Edited by David Don, Esq., Librarian to the Linnæan Society.

Loddiges's Botanical Cabinet; each monthly Number containing ten plates; 5*s*. coloured, 2*s*. 6*d*. partly coloured. Edited by Messrs. Loddiges.

DICOTYLEDONOUS POLYPETALOUS PLANTS.

XXIV. M*alvàceæ*. *Mál*va umbellàta *Cav.*, according to *Hort. Brit.*, introduced to Britain in 1814, and figured in the *Botanical Cabinet*, in t. 222., is figured as a newly-introduced plant in the *Botanical Register* for August, t. 1608. Mr. D. Don, who contributes the description, remarks that *Mál*va umbellàta "is rather a coarse-looking plant; but its many elegant scarlet blossoms compensate for its less graceful habit." (*Bot. Reg.*, Aug.)

XLVI. C*ácteæ*.

1474. *O*PU'NTIA. (Found wild in the country of the Opuntii, a Grecian people.)
§ 2. Divaricàtæ *Haw.*
aurantìaca *Lindl.* orange-*flwd.* ■ ⊐ gr 3 ... O.Y. Chile 1824. C s.l.ru Bot. reg. 1606
*C*áctus aurantìacus *Gillies MSS.*

"The plant from which our drawing was made is a branched dark green bush. The flowers are of a clear bright yellow colour, about 1½ in. wide when expanded, with a column of white stamens in their centre."

"Every one knows that the spines of the *C*ácteæ are always difficult to extract when they have entered the skin. If the spines are magnified, it will be found that this property is owing to their being closely covered, from the point downwards, with numerous barbs, which have their cutting bases directed towards the base of the spine: in appearance they are very like the arrow-heads with several rows of barbs, such as are used by certain Indian nations.

"An interesting fact relating to the common European opuntia is mentioned by M. De Candolle: — 'Among the practical consequences,' he observes, 'that results from the facility with which the *C*ácteæ strike from cuttings, there is one which, on account of its importance, deserves to be noticed: it is the manner in which the opuntia is employed to fertilise the old lavas at the foot of Etna. As soon as a fissure is perceived, a branch or joint of an opuntia is stuck in; the latter pushes out roots, which are nourished by the rain that collects round them, or by whatever dust or remains of organic matter may have collected into a little soil. These roots, once developed, insinuate themselves into the most minute crevices, expand, and finally break up the lava into mere fragments. Opuntias treated in this manner produce a great deal of fruit, which is sold as a refreshing fruit throughout all the towns of Sicily.'" (*Bot. Reg.*, Aug.)

LVI. M*yrtàceæ*.

1493. EUCALY'PTUS.
12820 *amygdálina Lab.* Almond-*leaved* ■ ⊔ or 6 jl W V. D. L. 1810. L s.l Bot. mag. 3260

This species, trained to a wall in the Edinburgh Botanic Garden, has there flowered. "With us," says Dr. Graham, "it is rather a slender shrub. We have not yet ascertained whether, like the pulverulénta, it will thrive without the protection of a wall." This shrub, though not showy in its flowers, is graceful in its pendulous branches, and long, narrow, lanceolate green leaves. (*Bot. Mag.*, August.)

.LXXIII. R*osàceæ*.

1523. *RU'BUS.*

13555*a* róridus *Lindl.* dewy-*glanded* ❀ └┘? cu ... aut W Madagascar 1831. L l.p Bot. reg. 1607

Figured from Mr. Lambert's garden at Boyton, Wiltshire. It is strikingly different from all the known species of simple-leaved brambles in its finely cut stipules and bracteas, which are covered with numerous little transparent green glands; giving all the parts that surround the petals an appearance of being sprinkled with green dew. *R.* róridus is chiefly an object of botanical interest, there being little in it to attract the mere lover of showy flowers. Its fruit is unknown. (*Bot. Reg.*, August.)

LXXVII. *Leguminòsæ* § Sophòreæ.

1246. CHORO'ZEMA *Lab.*

spartiöides *B. C.* Spartium-like ꝏ └┘ or ½ sp Y.R N. Holl. 1832. C s.p Bot. cab. 1953

" We raised it from seeds in 1832, and it flowered in abundance the following spring. The plants were not more than 2 in. or 3 in. high. The flowers are large, and splendid in colour. Its minuteness has hitherto prevented us from any attempt at propagating it; but it will probably, like others of the same genus, strike by cuttings." (*Loddiges's Bot. Cab.*, August.)

1251. GOMPHOLO'BIUM.

10524*a* ténue *Lindl.* slender ꝏ └┘ or 1 au Y S.W. N. Holl. 1830. C p Bot reg. 1615

A miniature shrub, raised in the nursery of Mr. Knight, from seeds collected by Mr. William Baxter. It flowered, for the first time in England, in August, 1832. Each of its slender shoots bears alternate leaves, each of three narrow leaflets; and is tipped with a pea-shaped blossom, whose outline equals in width that of a sixpenny-piece; and of a yellow colour, with its standard purplish at its back. It requires to be kept in an extremely well ventilated situation in a green-house. (*Bot. Reg.*, Sept.)

Leguminòsæ '§ L*òteæ*.

1941. PLATYLO'BIUM. [Bot. mag. 3258

17292*a* obtusángulum *Hook.* obtuse-angled-*lvd.* ꝏ └┘ or 1 my Y.R V.D.L. 1832? S s.p

Raised from seeds sent from Van Diemen's Land by Dr. Scott. A beautiful plant. P. obtusángulum " may possibly be only a variety of P. triangulàre of Brown, as given in the *Botanical Magazine*, t. 1508.; but has a much more straggling habit and longer branches, frequently throwing out new shoots from the axils of the leaves; the old leaves have much more obtuse angles, and the young ones are not angular at all; the flowers are considerably larger, and the lobes of the calyx particularly so." (*Bot. Mag.*, August.)

17292*b* Murray*ànum* Hook. Murray's ꝏ └┘ or 1 my Y.R V. D. L. 1832. S s.p Bot. mag. 3259

" Raised, from seed sent from Van Diemen's Land by Dr. Scott, at the Glasgow Botanic Garden; and Mr. Murray, the able and zealous curator of this establishment, at once recognised it as a species quite distinct both from P. obtusángulum and from the P. triangulàre: and I [Dr. Hooker] am desirous that it should bear his name. It bears a great number of flowers, which expand their vivid petals during the day, and close them as the evening approaches." (*Bot. Mag.*, August.)

2102. *ASTRA'GALUS.* [Bot. mag. 3263

procúmbens *Hook. & A.* procumbent *stemmed* ⵣ △┘? or 1¼ my Y.B.P Chile 1832. S co

A pretty species, although not a strikingly showy one. " Communicated from the Birmingham Botanic Garden by Mr. Cameron, who raised the plant from Chilian seeds. It is found in the plains at Conception, Valparaiso, and Coquimbo; and will probably always require the protection of a green-house or of a frame:" during winter only, of course, is, at most, meant. (*Bot. Mag.*, Sept.)

*A*strágalus vesicàrius (bladdery-calyxed milk vetch) is figured in the *Botanical Magazine* for September, t. 3268., where the following remarks on it are given: — "This very handsome and very highly desirable species is a native of barren wastes in the south of France, and of Russia as well as of Hungary, and is perfectly hardy: it flowers in May. Although, as cultivated in the Glasgow Botanic Garden from seeds communicated by M. Otto of Berlin, the flowers are always of a rich purple colour, becoming darker and almost blue in age, yet they appear, in a wild state, to be sometimes cream-coloured or white."

Leguminòsæ § Mimòseæ.

2837. ACA'CIA.
24667*a* vernicíflua *Cun.* varnish-flowing ■ ⊔ or 6 mr.my Y N. Holl. 1823. C s.l.p Bot. mag. 3266
Synonymes: No. 24682. *Hort. Brit.*; and also No. 24732., according to Cunningham, in *Bot. Mag.*

A slender twiggy shrub, remarkable for a glutinous substance which clothes not only the young stems, but (although in a less degree) the young foliage also. Mr. Cunningham discovered this species "in the country around Bathurst [New Holland], where it flowered throughout the winter. It also adorns the barren hills near Cox's River, at the cool season of the year; and in about December its pods are ripened. With us, at Kew, it blossoms in the spring, along with many others of its kindred; mingled with which, it forms an agreeable contrast by its slender habit and deep yellow flowers," which are grouped into globular heads, seated on short axillary stalks. (*Bot. Mag.*, Sept.)

CXXIII. O*xalídeæ.*

1414. *O'*XALIS.
11985*a* brasiliénsis *B. C.* Brazilian ☋ ⌊△⌋ or ¼ my Ro Brazil 1829. O p.l Bot. cab. 1962

We received bulbs of it, in 1829, from Mr. Warre, who collected them himself in Brazil... It is a very pleasing plant. We have kept it very well in the green-house, potted in light loam and peat. It increases itself freely by offsets. (*Bot. Cab.*, Sept.)

*O'*xalis crenàta [Vol. VIII. p. 16., Vol. IX. p. 78. 232.] appears to be one of the most accommodating and prolific plants I know; but it cannot have too rich a soil. The only plant which has flowered in this neighbourhood is one raised by a gardener of the name of Saunders, from a tuber weighing only 28 grains, which he planted in an old cucumber bed, and which has produced a bush as large as a gooseberry bush. This plant flowered on the 5th of August, and has produced above 1000 blossoms, making a most splendid appearance; but these all fall off without producing seed. The brief descriptions of this plant, given in De Candolle's *Prodromus* and Turton's translation of Linnæus's *Systema Naturæ*, are extremely vague and inaccurate. De Candolle speaks of the umbel as 5 to 6 flowered, while it really is from 10 to 13 or 14 flowered. The calyx is deeply 6 or 7 cleft; the corolla is 6, 7, or 8 petaled; and the number of stamina is 15 or 16, arranged in two rows, in the outer of which the filaments are above one half shorter than the 9 or 10 within. —*Wm. Hamilton.* 15. *Oxford Place, Plymouth, Aug.* 26. 1833.

In a previous letter, dated March 9. 1833, Dr. Hamilton remarked, that a knowledge of the proportion of amylaceous contents in an equal weight of the tubers of *O'*xalis crenàta *Jacq.* and of those of the potato (*S*olànum tuberòsum *L.*) is very desirable; and that it is to be hoped cultivators of, and experimenters on, the *O'*xalis crenàta will direct their efforts to the determination of this point. See, in p. 594., a notice of the use of the leaves of *O'*xalis tetraphýlla as sorrel.

CXXIV. *Tropæòleæ.*

1148. TROPÆ'OLUM 9311 màjus.
3 atrosanguíneum *D. Don* dark red ○ ⁎ or 3 jn.o Peru Garden var. S co Sw.fl.g.2.s.204

This is a splendid variety of the common nasturtium. "Its large dark red blossoms, of a velvety hue, render it a most desirable object for the flower-garden. It is usually more dwarf than the common kind; and, like it, will thrive in almost any soil. It is readily increased by cuttings, and, we have little doubt, will continue true to colour from seed. Figured from the nursery of Messrs. Allen and Rogers, Battersea. (*The British Flower-Garden*, August.) Messrs. Young cultivate this variety. See Mr. Penny's list, p. 490.

CXXXI. *Passiflòreæ.*

1923. PASSIFLO'RA.
16859*a* phœnícea *Lindl.* crimson ⌠ □ spl 20 s C ... 1831. C l.p Bot. reg. 1603

"A splendid acquisition, for which we are indebted to the Right Hon. the Countess of Bridgewater, in whose stove at Ashridge it flowered in September, 1832. It is nearly allied to P. alàta and quadrangulàris; from which it differs in having only two glands at the upper end of the leafstalk, and in the form of the leaves of its involucrum. Its flowers are also much more brilliantly coloured than are those of either P. alàta or P. quadrangulàris. The petals, on their inner surface, are of a rich deep scarlet; on the outside, deep violet, with a white streak along the middle. The crown is about as long as the petals, composed of several rows of tapering processes; which are collected into a cylinder, and are white, with crimson bands on the lower half, and, on their upper half, a deep rich violet." (*Bot. Reg.*, August.)

CXL. *Caryophýlleæ.*

1415*a*. AGROSTE'MMA.
12017 pyrenàica *G. Don* Pyrenean ♃ △ pr ½ jn.jl Pa.Ro Pyrenees 1819. D p.l Sw.fl.gar.2.s.202
Lýchnis pyrenàica *Bergeret*, Hort. Brit. No. 12017. p. 186.

An interesting diminutive species, suited to rockwork or a collection of potted plants. Its flowers are delicately coloured, and are pretty. (*The British Flower-Garden*, August.)

CXLIV. *Portulàceæ.*

3357. CALANDRI'NIA.
arenària *Lindl.* sand-*inhabiting* △ ⊙ cu ½ jl O.Ro Valparaiso 1831. S s.l Bot. reg. 1605

"Like many other weedy things, this possesses peculiar beauties if carefully observed. If neither its corolla nor its leaf are curiously formed or richly coloured, the singular markings of the calyx and bracteæ are extremely pretty. .... A hardy inconspicuous annual, readily increasing by its little shining black seeds, which it produces in great abundance." Possessed by the London Horticultural Society. (*Bot. Reg.*, August.)

DICOTYLEDONOUS MONOPETALOUS PLANTS.

CLXX. *Eríceæ* § *vèræ.*

1173. ERI'CA § Tubiflòræ.
canthariformis *B. C.* can-*flwd.* ■ ⌴ or my.jn W C. G. H. 1829? C s.p Bot. cab. 1961

"Introduced not long since. ... It is of upright growth. .. The flowers, in shape, resemble a little can;" and, as the picture represents them to be numerously produced, it is, while in flower, doubtless a pleasing species, and, therefore, a desirable one. (*Bot. Cab.*, Sept.)

CLXXI. *Epacrídeæ.* Dracophýllum secúndum is figured in the *Botanical Magazine* for September, t. 3264.; where Mr. Allan Cunningham remarks, of this elegant and interesting shrub, which was first raised in this country from seeds that he gathered near Port Jackson, and transmitted in 1823, — "It is found in shaded ravines, and such humid situations as the ferns delight in. In its native country, its habit is different from that which it not unfrequently assumes when under cultivation; for, growing there, as it always does, on wet sandstone rocks, almost wholly denuded of soil, its raceme is much fewer flowered, and the plant itself altogether of slenderer growth. .... The plant is a very desirable one for cultivation, as it flowers freely with the protection of a green-house; and there ripens seeds, by means of which it may readily be increased." (*Bot. Mag.*, Sept.)

CLXXIV. *Campanulàceæ.*

606*a*. PLATYCO'DON *A. Dec.* (*Platys*, broad, *kōdōn*, a bell.) 5. 1. Sp. 1. —
4926 grandiflòrus *A. Dec.* great-flwd. ♃ △ or 1 jn.au B Siberia 1782. D p l Sw.fl.g.2.s.208
Campánula grandiflòra *L.*, Wahlenbérg*ia* péndula *Schr.*, Hort. Brit., No. 4926.

" One of the showiest of this showy group of plants; and, although introduced many years ago, it is still far from common in our gardens. It will be found to thrive best in a mixture of peat and loam; and is increased by parting the roots, or by seeds. Figured from the nursery of Mr. Knight. (*The British Flower-Garden*, Sept.) Mr. Dennis has plants of it.

CLXXXVI. *Compósitæ.* Trib. S*enecionídeæ.* Subtrib. T*aget*íneæ *Lessing.*

2364. BŒ'BER*A.*
incàna *Lindl.* hoary-*herbaged* ⊔ or 1½ n Go Mexico 1828 ? S lt.l Bot. reg. 1602

It is a half-shrubby green-house plant, of little beauty, and possessing the peculiar odour of the French marigold, to which it is nearly allied. This odour resides in a number of little transparent bags enclosed within the substance of the leaf, which are filled with a very volatile oil. Seeds of it were obtained from Mexico, some years since, by Edward Barnard, Esq. (*Bot. Reg.*, Sept.)

CXCV. A*sclepià*deæ.

778. CEROPE'GIA.
6211*a* Wight*ii* Grah. Dr. Wight's ⊠ cu 20 su G.P East Indies 1832. D l.p Bot. mag. 3267

" This very distinct species of Ceropègia flowered this summer, 1833, in the Edinburgh Botanic Garden, where it had been received from the East Indies, under the name of C. bulbòsa. It agrees with that species in having a tuberous rootstock, a twining succulent stem, in the leaves, and in the form of the corolla; but it is at once distinguished by the corona, or crown of the stamens, which equally separates it from every other species with which I am acquainted. I would take this opportunity of calling the attention of botanists to the form of that organ, as affording the most permanent characters for distinguishing allied species in this genus." (Dr. Wight, in *Bot. Mag.*, Sept., whose remarks there merit the attention of the student in botany.)

Hóy*a* Póttsi*i* is figured in the *Botanical Cabinet* for September, t. 1969.: it flowers in May.

CC. P*olemoniàceæ.*

473 COLLO'MIA.
28070*a* lateritia *D. Don* red brick-coloured ○ or 1 jl Bri Chile 1832. S co Sw.fl.gar. 2.s. 206

Flowers individually small, but crowded into tufts at the tip of the branches; and, as several flowers in one part or other of the tufts are open together, they in their number and red colour are not inconspicuous. " It is a hardy annual, of very easy culture; and ripens its seeds freely, which come up spontaneously in the open border. Our drawing was taken at the botanic garden, Chelsea, in July last." (*The British Flower-Garden*, Sept.)

CCXI *Scrophulárinæ.* § *Anther-bearing stamens two.*

65. CALCEOLA'RIA.
27995*b* crenatiflòra *Cav* notched-*lipped* △ or 1½ jn.s Y.spot Chiloe 1831. S p.s.l Bot. mag. 3255
C. anómala *Persoon*, C. péndula *D. Don* in Sweet's *Brit. Flower-Garden*, 2. s. t. 155., and in *Gard. Mag.*, vol. viii. p. 601.

" There is no species of this beautiful genus which forms so striking an object in the green-house as this. How far it will bear cultivation in the open air we have yet to ascertain. I can see no reason whatever for the specific distinction between C. crenatiflòra and C. péndula which is attempted to be drawn in *The British Flower-Garden.* I have both plants from Mr. Low of the Clapton Nursery, who first raised them from seeds gathered in Chiloe by Mr. Anderson, and who furnished the plant figured as C. péndula in *The British Flower-Garden;* and I cannot see a shade of difference between them." (*Dr. Graham* in *Bot. Mag.*, August.) C. crenatiflòra is figured in the *Botanical Register* for September, t. 1609., where Dr. Lindley describes it as " one of the handsomest of the Chilian calceolarias. . . . It is a herbaceous plant, growing from 1 ft. to 2 ft. high, and of a remarkably dark rich green in the foliage. . . . . It is as hardy a species as any one of the genus, and admirably adapted for employing as the male parent of a race of hybrids. Like all the other species, plenty of air and a cool situation, when in a growing state, are absolutely indispensable to it; for in no way do the whole of the herbaceous kind thrive so well near London as kept in pots in a cool shady frame. . . . . Increased by seeds, and by division at the crown of the root." Drawn from a plant in Mr. Low's nursery, at Clapton.

577*a* viscosíssima *Lindl.* clammiest ■ ⌋ or 3 my.o Go.Y Chile 1832. C p.l Bot. reg. 1611
C. integrifòlia γ viscosíssima *Hooker* in Bot. Mag., 3214., *Gard. Mag.*, vol. ix.p. 238., C. rugòsa macrophýlla *Hort.*, C. rugòsa latifòlia *Herbert.*

A beautiful shrubby species, with the habit of C. integrifòlia, except that it has a far more herbaceous character. It grows about 3 ft. high, and produces ample crops of flowers all the summer long. It is covered all over with viscid hairs, so densely that it is difficult to separate it from any thing that is pressed upon it. (*Bot. Reg.*, Sept.)

CCXIII. Solàneæ. § *With the seeds enclosed in a berry.*

591. SOLA'NUM
*l*igústrinum *B. C.* Privet-*leaved* ■ ⌋ or 5 my Dp.Li Chile 1831. C r.l Bot. cab. 1963

Raised from seeds received of Mr. Cuming. " It is a free-growing shrubby plant, with slender branches, and may be easily preserved in a green-house:" we have ventured to say, a frame. " It may be readily multiplied by cuttings, which should be potted in rich loamy soil." The picture exhibits two corymbs of flowers; of which one consists of five flowers, the other of four: a sixpenny-piece would about cover each flower. (*Bot. Cab.*, Sept.)

Solàneæ. § *With the seeds enclosed in a capsule.*

1714. SALPIGLO'SSIS.
29217 lineàris *Grah.* linear-*lvd.* £ △⌋ or 1 ap.s P.Y Buen Ayres 1832. C l.t Bot. mag. 3256
Botanists differ as to the generic relations of this plant.

" Exceedingly pretty, and very well deserving of cultivation. It strikes very readily by cuttings, and will probably thrive well in a dry light greenhouse."

Schizánthus retùsus is figured in Sweet's *British Flower-Garden* for August, t. 201., from the nursery of Messrs. Allen and Rogers. Mr. D. Don has remarked, that the glandular hairs of the species of Schizánthus give out a peculiar acid secretion: " a fact," says Mr. Don, " first pointed out to me by Miss Murray, a young lady of eminent botanical taste and knowledge."

" A light fresh earth, not too rich, will be found to suit S. retùsus best; and, if the plants are to be kept in the green-house, a free admission of air and light is absolutely necessary to preserve them in health and vigour, and to give the flowers their proper tints of colour:" and these, according to the coloured figure, are most strikingly showy.

Mr. Don remarks, that, notwithstanding that botanists generally refer this genus to the order Scrophularíneæ, and compare it with Calceolària, he feels confident that it belongs to the order Solàneæ; and is closely allied to the genus Salpiglóssis in the structure of its capsule and seed, in its arched embryo, its glandulose capitate pubescence, and its corolla being somewhat similarly coloured and variegated.

Monocotyledonous Plants.

CCXLV. Melanthàceæ.

Xerophýllum setifòlium of Michaux is figured in the *Botanical Register* for September, t. 1613., where Dr. Lindley represents that both the X.

tènax *Nut.* and X. *a*sphodelöìdes *Nut.* (the Helònias *a*sphodelöìdes *L.*) are one and the same as X. setifòlium *Mx.* If this be the case, Nos. 9131. and 9132. of *Hort. Brit.* imply but one plant. X. setifòlium *Mx.* "grows wild in various parts of North America, especially in the sterile tracts called pine barrens, both on the east and west side of the continent. The natives inhabiting the highlands of the Rocky Mountains, where it is abundant, weave their water-tight baskets out of its tenacious leaves."

CCXXXVIII. *Amaryllìdeæ.*

979. ALSTRŒME*'*R*IA.*
28163*a* aurantìaca *D. Don* orangy.*fld.* ♃ △| spl 2 jn O.spot Chile 1831. D l.p Sw.fl.gar.2.s.205
? A. aùrea *Hort.*, Penny in *Gard. Mag.*, vol. ix. p. 490.

"We fear that this very showy plant is scarcely entitled to be considered in any other light than as a mere variety of A. Símsii Swt.; and from which it is distinguished by, besides colour, chiefly its perfectly glabrous leaves, by the lanceolate and more pointed inner leaflets of the perianth, and by their longer and narrower claws: but the erect species of Alstrœmèr*ia* are found to vary so exceedingly, that we are sceptical of any definition that can be given of them. Introduced from Chile by Mr. Anderson, the indefatigable collector, who accompanied Captain King in his voyage of sùrvey in South America. The plant requires the same treatment as A. Símsii, and appears to be quite as hardy as that species. Our drawing was taken in the Clapton Nursery, in June last." (*The British Flower-Garden*, Sept.) We presume this is the very kind of which Mr. Penny has, in our last Number (p. 490.), thus spoken: — "A. aùrea *Hort.*, closely related to A. psittacìna; and, like that species, easily increased by division. The flowers are bright yellow, inclining to orange colour, with crimson lines on the upper segments: it is a beautiful species."

Mr. Don takes occasion to remark, that the interesting physiological fact exhibited in the resupinate leaves of the alstrœmerias, and which we have quoted in Vol. VIII. p. 724., from Dr. Lindley, and supposed had originated with that author, was the discovery of Dr. Brown, some time since.

CCXL. *Orchìdeæ* § Vándeæ.

2524. CIRRHÆ'A. [Bot. cab. 1967
22642. víridi-purpùrea *B.C.* green *and* purple £ [△] or ½ my G.P.spot Brazil 1827. D lt.moss potsh
This is the species which we have indicated in Vol. VIII. p. 725.; and the Gongòr*a* víridi-purpùrea of Hooker in *Bot. Mag.*, t. 2978.

"This curious plant has been lately introduced. The flowers are disposed in a pendulous raceme; and, in that exhibited in the plate, are eleven in number: their segments are of a lanceolate form, and have a green ground colour, abundantly spotted with transverse blotches or spots of a purple colour. We should say it is an elegant and beautiful plant. (*Bot. Cab.*, Sept.)

2530. CATASE'TUM. [Bot. mag. 3262
22656*a* trífidum *Hook.* trifid-*lipped* £ [△] or 1½ my Lu.G.spot Trinidad 1832. D p.r.w

Leaves elliptic-lanceolate, waved, striated; of a bright but pale green above, pale and somewhat glaucous beneath. Scape from the base of the stem nearly 1½ ft. high. Flowers large, of a lurid green colour, tinged and copiously spotted with purple, disposed in a lax drooping spike. A beautiful and most interesting species, sent home alive by Mr. Lockhart. (*Bot. Mag.*, Sept.)

Orchìdeæ § *Epidéndreæ.* Blèt*ia h*yacínth*ina* is figured in the *Botanical Cabinet* for September, t. 1968., where Messrs. Loddiges remark, that "it has been usual to keep this plant in the stove; but we find it to grow and thrive in a far superior manner in the green-house. It should be potted in vegetable earth, with a portion of sand; and it increases itself freely by offsets from the bulbs. The flowers are produced during the spring months; they are exceedingly beautiful: their colour baffles art more than that of many others, its clearness and brilliancy in the living specimen being absolutely inimitable."

Orchideæ § Malaxideæ. Of Dendròbium speciòsum, a superb specimen, "one of five produced upon the same cluster of stems, in the garden of the Rev. Mr. Huntley of Kimbolton, Huntingdonshire, is figured in the *Botanical Register* for September, t. 1610. Dr. Lindley observes, that this species is very common in collections, but that it seldom flowers. "This," he adds, "is owing to the weakness of the specimens, compared with what is natural to them in their own country. It is not enough to keep their leaves green and plump, it is also necessary that the plants should grow rapidly, and to at least twice the size we are accustomed to see them: then, and then only, will they yield their stately and beautiful racemes of pale yellow wax-like blossoms."

ART. III. *Retrospective Criticism.*

A MISTAKE *by the Conductor respecting the Wages of the Assistant Gardeners employed in the Gardens at Woburn Abbey.* (p. 455.) — Sir, On looking over the last Number of your *Gardener's Magazine*, I perceive the following passage, inserted at p. 455.: — "The last time we were at Woburn Abbey, the wages of the journeymen gardeners there were 9*s*. a week." I am at a loss to conceive how you could possibly make such a mistake; as the wages of the journeymen gardeners employed at Woburn Abbey were from 12*s*., 14*s*., 16*s*., 18*s*. to 20*s*. a week, exclusive of lodging, milk, vegetables, &c. I must therefore beg that you will have the goodness to take the earliest opportunity of correcting your former statement; as, in fact, there is not a labouring man employed in the gardens here, whose wages are even as low as 11*s*. 6*d*. per week throughout the year, which sum they have not been under during the last *thirty years*, but frequently above it. I remain, Sir, yours, &c. — *J. Forbes. Woburn Abbey Gardens, August* 7. 1833.

Pecuniary Disabilities of Working Gardeners. — Sir, In looking through your Magazine for October, Vol. VIII. p. 521., I observed "Horticultural Jottanda of a recent Continental Tour by Robert Mallet, jun., Esq." He says that the pecuniary difficulties of young gardeners are not so great as may be imagined: "An attentive young man could and ought to have 80*l*. by the time he is 24 years of age." Certainly Mr. Mallet never has been a journeyman gardener; or, at least, if he had, he certainly had more than 9*s*. or 10*s*. a week (that being the general wages in Scotland), that he could imagine other men could save so much at so early an age. If, like some of our live stock, we could live by suction, we should, no doubt, soon be able to accumulate the said 80*l*. He speaks of our going to France, Italy, and returning through Germany, Belgium, and Holland, and to provide ourselves with carpet bags, magnesia, detonating pistols, military uniform, and what not. Supposing all this provision to be made previously to starting, I think the hard-earned 80*l*. would be nearly expended in purchasing all this grandeur before we left our *ain* highland hills. I do not mean to say any thing for or against the utility of such a tour; but I should be obliged to Mr. Mallet, or any of your correspondents, if they would communicate the new way (at least new in this part of the country) by which a young gardener can save the money requisite for the purpose. If he or they will, and I can succeed in practising it, I shall certainly become a tourist. I am, Sir, yours, &c. — *W. B., a young Gardener and constant Reader. Perthshire, March* 24. 1833.

The List of Plants from Provincial Nurserymen: Mr. Henry Laundy's Rejoinder to Messrs. Jeffries and Son's Reply, p. 493., *and to that of Mr. John Smith,* p. 494. — I am unable to conceive how Messrs. Jeffries and Son see that any saving of expense results from the insertion of lists, when the parties have not the plants in sufficient quantities for sale, which Messrs. Jeffries and Son admit was partly their case at the time of their list being inserted. I would remark, the most likely way to avoid expenses is to apply to any one of the many eminent nurserymen in the vicinity of the metropolis, and who, if not possessing the plant, would be happy to procure them for, and to instantly forward them to, them. Messrs. Jeffries and Son state me to have said "Mr. Smith being a man not possessing any knowledge of plants," which is erroneous. I said professing; and as Mr. Smith has, in p. 495., declared my assertion of his not professing any knowledge of plants void of the least particle of truth, I give up my author, who is Mr. John Smith himself, and his words *verbatim* to me, namely, "I know nothing at all about plants; forcing is my hobby."— *Henry Laundy. Woodbridge Nursery, Sept.* 2. 1833.

Criticisms, Facts, and Suggestions on cultivating Cape Heaths. (p. 244.) — Sir, I observe, in your Gardener's Magazine, frequent communications relative to the best mode of growing Cape heaths [Vol. V. p. 47., Vol. VIII. p. 736., Vol. IX. p. 244.], but the treatment recommended is so various and contradictory, that it is not surprising we so seldom meet with these lovely plants. That a genus so splendid, affording so much interest, and displaying such variety, both in flowers and foliage, should be neglected, is matter of regret; and that this indifference should arise from the, I believe erroneous, opinion of the great and almost insurmountable difficulty of keeping heaths, is much to be deplored; because it deters a vast number from turning their attention to the cultivation of them, that might otherwise be disposed to do so, were it not for the hopelessness of succeeding which, they are taught to believe, attends the growing of them. In your last Number (p. 244, 245.) I perceive two of your correspondents (a Constant Reader and E. B.) recommending two modes of treatment, as opposite as possible, for the prevention of mildew: a Constant Reader advising the leaves never to be subjected to wet, and always to be kept under glass; and E. B. proposing that the hardier sorts should be turned out of the green-house in the summer, and placed under a wall, so that they may not be exposed to the sun, in the middle of the day; and that the more tender sorts be put into a frame, and occasionally watered over their leaves. Perhaps each of these methods may be good under particular circumstances; but, in opposition to both, I would beg to refer to the mode adopted at the Tooting Nursery. I paid a visit to this place a summer or two back, when I saw the greater part of the heaths, placed in the centre of the ground, exposed to the sun during the whole of the day, and also to all the heavy rains of the season: they were looking certainly rather rusty, but displaying a hardy stocky growth. In the following spring I again called at this nursery, when I found the heaths looking in excellent health, with abundance of bloom; indeed, a more beautiful sight cannot well be imagined. This, I think, clearly proves that ericas may be exposed both to rain and sun with advantage.

Some few years back, chance led me to a gentleman's garden in the neighbourhood of Clapham, where I saw a small collection of ericas, but well grown, and blooming in an uncommonly fine style: I had seen heaths before, it is true, but had never been so much struck with their beauty. On leaving the place, I determined in my own mind to attempt to grow heaths, notwithstanding the difficulty I was led to expect. I therefore immediately commenced getting a collection, and in a few weeks I had procured nearly seventy different species. As I knew nothing of the cultivation myself, I was indebted to the advice of some of my more experienced acquaintances, all of whom agreed in recommending me to be very careful in not giving them too much water. In a short time, however, I found some of my heaths dead; and, on consulting my professional friends, they one and all told me it was in consequence of watering them too much. Acting on this advice, I was induced to decrease the quantity, but still the mortality increased in a frightful degree. When my stock had been reduced to something less than a dozen, I began to fancy there must be some other cause than the one assigned, and I was strengthened in this opinion by the circumstance of observing that the mould of the plants which I turned out of the pots, after their dissolution, was quite hard and dry, particularly in the centre: it therefore occurred to me that the cause of my losses was quite the reverse from the one assigned. I immediately proceeded to re-pot the few I had left, in a mixture of bog [heath mould] and sand, a small portion of loam, and some broken pieces of pot: this was previous to the treatment recommended [Vol. I. p. 363—365.] by Mr. Bowie coming under my observation. I then gave them a good portion of water, and continued to do so during the remainder of the summer. I soon found them assume a more healthy appearance, and I did not lose one during the succeeding winter. I have continued the same treatment ever since, never allowing them, if possible, to get too dry, particularly in the summer; and I find that the few species which I have got thrive with me, and some of them seed very freely. It is true that, from particular circumstances, I have never been able to get together so extensive a collection as I did on my first attempt to grow heaths, but I have, in subsequent years, increased my stock a little, and I give a list below † of the species which I now have, the whole of which I have had in my own charge for upwards of two years, and several of them are those which I first purchased. I have put a star to those which have seeded with me. When I state that, from my avocations, I am from home at least eight hours every day, and have, besides, a great number of other plants to attend to, it will, I think, prove that there is not so much difficulty in keeping heaths as we are led to suppose. I should, perhaps, observe that I have kept the greater part of them under glass, as recommended by your correspondent, "A Constant Reader;" but I am induced to do this, more from a want of convenience to put them out, than from any fear of the consequence of exposing them to the weather in the summer: besides, my residence is not out of the influence of the smoke of London; and although I am not prepared to deny that ericas may be kept near London, yet I must confess my opinion is decidedly in favour of a pure atmosphere being indispensable for growing them in perfection. That a green-house is not absolutely necessary for preserving them, I think any one will readily admit, after seeing Mr. Fairbairn's heaths, in the Clapham Road Nursery, than which none can look more healthy: these are kept in pits only in the winter; and it is, I believe, the practice at this place also to expose them in the open air in the summer.

In every collection of heaths it must be expected that some will occasionally perish; besides, many of them, as they get old, become unsightly: it is therefore desirable always to keep a succession of young plants. This can easily be done by striking a few, every year, from cuttings. Some of the sorts are a little difficult to propagate; but, by a little perseverance, a novice will, in a short time, get the method of doing it. It was two years before I succeeded with any but the very common sorts; but, by attention, and a determination to accomplish what I knew was done by others, I succeeded in getting young plants from all those which I attempted to strike, with the exception of *E.* tortulæflòra: this latter I have tried twice, but without success, but I did not put more than three or four cuttings in, each time.

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† Erìca *Aitoniàna, *ampullàcea, assúrgens, *Bowieàna, calycìna, *cerinthöìdes, colòrans, *echiiflòra, élegans, empetröìdes, *gélida, *grandiflòra, Humeàna, *Irbyàna, Massòni, nígrita, *pilòsa, pínea, Plukenetiàna, puverulénta, pyramidàlis, quadræflòra, regérminans, Savileàna, Sebàna, tortulæflòra, *trícolor, *ventricòsa, *vestìta, *víridis.

I have been induced to trouble you with this communication, in the hope of inducing some of your readers to become growers of Cape heaths, feeling satisfied in my own mind that they may be cultivated with the same ease, and with less trouble, than is bestowed upon some plants much less interesting, and less worthy of notice. Should you be of opinion that the above observations are likely to forward such a result, you will, perhaps, be good enough to give them insertion in your Magazine, which will much oblige, yours, &c. — *E. London, May* 3. 1833.

On exposing the Cape Heaths to the open Air of Britain during Summer and Autumn. — The following is the practice of Mr. Forbes, described in p. 275, 276. of his *Hortus Woburnensis*, noticed in p. 601. of the present Number. "About the latter end of May, or beginning of June, the plants may be turned out of doors, and placed in a situation where they can have the benefit of the morning and evening sun, but sheltered from the westerly winds, and scorching effects of the sun's rays in the middle of the day; and arranged so as that a free circulation of air can readily pass among the whole collection, which will prevent their being drawn up in a weak or languid state, as is frequently the case when crowded. The scarcer and more delicate-growing sorts should be placed in a pit or frame, where they can also be shaded from the midday sun (by throwing a thin mat over the frame), and protected from heavy rains. If the autumn months are at all favourable, the plants may be left out of doors until the middle or latter end of October, when they should be all cleaned and replaced in the heath-house; but, if the season is wet, they will require to be taken into the house earlier, in order that they may be protected from the heavy rains, which would saturate the soil about their roots, and be injurious to the plants. When the heaths are taken into the heathery or green-house, they should have as large a portion of air given to them as the house will admit of, both night and day, which should never be excluded, except in frosty or cold and wet weather, when the heathery should be shut up at night, but reopened, if only for a couple of hours, in the middle of the day."

Mr. Whiddon's Mode of cultivating Onions and Asparagus. (p. 323.) — I feel myself called upon to thank Mr. Whiddon for the information addressed to me in his letter (p. 323.), and to remark that, had he, together with the description of his mode of cultivation, informed me philosophically of the reason and principle on which he recommends it, he would have conferred on me a greater favour; my object being to acquire knowledge grounded on sound principles. The peculiarity of Mr. Whiddon's mode appears to me to consist in excluding atmospheric air and moisture from the roots, by treading the mould hard around the onion plants. I am a young man, and, of course, a young gardener, and may have been wrongly instructed; but I have been taught to believe that the office of the roots is to absorb food in a fluid or gaseous state from the soil, for the sustenance and nourishment of the plant. Let me ask, does the hard trampling of the soil assist or retard the production of such fluid or gaseous food in the soil; or does it better enable the root to take it up? I should think, upon philosophical principles, that freely admitting atmospheric influence to the root, by occasionally stirring and loosening the soil with a hoe, would much better answer the purpose. I read in Dr. Lindley's *Outlines of the First Principles of Horticulture*, that the exclusion of air from the roots will always induce an unhealthy condition in the plant, or even death itself. Dr. Lindley further states that "this may be one of the reasons why stiff tenacious soils are so seldom suited to the purposes of the cultivator; until their adhesiveness has been destroyed by the addition of other matter."

Such seems to be the nature of the soil in which Mr. Whiddon planted his asparagus and onions. I must acknowledge that, for the benefit of both crops, I should have pursued a different plan from that followed by him. He describes the ground as being remarkably hard after the whole was completed. If the above-quoted principles be true, Mr. Whiddon's practice must be aberrant.

He afterwards states that his crop was pulled up without attention being paid to any particular time or form, and still his crop was sounder and better than those of his neighbours. In this I think he must have been remarkably fortunate. I have ever found that the sound quality of the onion mainly depends upon the bulb being pulled up at the proper season, and afterwards well dried and ripened in the open air: to do which properly, much care and attention ought to be bestowed upon it.

I cannot agree with Mr. Whiddon regarding the size of onions. I have generally found those of the larger size preferred, as being milder, and better in quality, than small ones. It is my employer's desire that I should, and my ambition to, grow in his garden, fruits and vegetables of the largest size, as well as of the best quality. The wishes of another personage in the family must also be attended to by me. Our cook would scold and rate me soundly, were I to supply her with small onions instead of large ones, and might, perhaps, in her anger, throw them at my head, and call me a saucy youngster, for giving her the trouble of peeling half a dozen small onions, when one large one would have better answered the purpose. I must confess that in my short experience I have seen many small onions thrown into the pig-trough, but have never seen any large ones so wasted. I have likewise experienced that the large onions are sure to be the first picked out by the cook, if left to her discretion, and at the latter end of the season none are to be found in her stores but the small and refuse. I do not mean hereby to deny that small onions are useful in a family, but it is my pride to show my master, and his visiters, that I can grow large onions.

Mr. Whiddon advises me to try as he has suggested, and says I shall find an advantage in time. Mr. Whiddon acknowledges in his paper that he is a young gardener: we are therefore both young gardeners. If his mode be correct, I have uselessly expended much time and labour in my vocation. Were I to have followed his plan of forming an asparagus bed by digging it only one spade's depth, I should have saved myself much labour, for I have always been simple enough to prepare my asparagus beds by digging them at least three times that depth. He informs me that, for the purpose of keeping his tenacious soil open, he used coal ashes with the dung. I should have been simple enough to have searched the country over for drift-sand for that purpose; having been taught that coal ashes are injurious to the roots of vegetables. I wish his successor in the garden of J. B. Praed, Esq., would inform me of the size to which the asparagus heads on that bed grow; because I would certainly adopt Mr. Whiddon's mode if it succeeded, in consequence of its saving so much labour and time. — *J. Mitchell, jun., Gardener. Slapton, near Dartmouth, Devon, June* 26. 1833.

ART. VI. *Queries and Answers.*

THE Accentuation of the Terms of Chemistry. (Vol. VIII. p. 735., Vol. IX. p. 122. 500.) — Sir, When I solicited you, in Vol. VIII. p. 735. or some of your learned correspondents, to insert in this Magazine a list of the chemical terms relating to horticulture, I ought, perhaps, to have said, chemical terms more immediately connected with gardening, and such a vocabulary as, but shorter than, that in the end of Ewing's

Geography, without either the etymology or definition. One winter evening I began to make a list from Ure's *Dictionary of Chemistry*, of what appeared to me "crack-jaw names," and marked them according to Walker's *Pronouncing Dictionary of the English Language.* Well, I did not proceed far, before I found not a few of those terms not as yet Anglicised. From what Mr. Mallet has, in Vol. IX. p. 122., said, it would appear that he had supposed I wished the derivation of the words also: no, I could not expect so much. However, I am glad to learn from him, that a knowledge of chemistry can be acquired without the aid of the learned tongues; but I suspect that that gentleman had been well founded in them before he studied chemistry, or, perhaps, learned both at the same time. To an ordinary English scholar, such words as caoutchouc, are "kittle" words to pronounce. I believe we are told that ch from the Greek is generally pronounced hard, as in architecture, and from the French it is soft, as in chaise. Supposing these words were not anglicised, how are we to know? By attending public lectures, where you may pick up these sort of things. Very good: but many must be content to peruse Sir H. Davy, Dr. Ure, &c., at home. Had the latter gentleman added to his *Dictionary* a vocabulary similar to the one in Ewing's *Geography*, it would have made his book still more valuable. I am, Sir, yours, &c. — *W. Taylor. Thainston, May* 29. 1833.

Square-blown Bell-glasses. — Sir, I should feel greatly obliged if you would, through the medium of your Magazine, inform me of the place where I can obtain, and the price of, square-blown glasses, 9 in. or 12 in. in length, and 6 in. or 8 in. wide, for striking Cape heaths or other exotic plants. — *Juvenis. July,* 1833.

Millepedes. — I should be glad to know the best method of destroying monkey-pees [millepedes?] in mushroom beds, as they appear to me to eat and destroy the spawn. — *Id.*

What are the relative Degrees of Effect on Vegetation of the following, or any additional, Kinds of Manures? — Sir, The subject of manure is a very curious one, and not well understood. Which is the most powerful manure? It will be asked; do you mean on clay, or sand, or loam, or gravel? The reply is, let us take each, or any, or take all land generally; and then, I ask, which is the most powerful manure? The following list (I wish any one would supply those which are omitted) contains the names of the principal manures now in use. The relative effects have never, as far as I know, been ascertained. If they have, I shall be obliged by information on the subject; if they have not, I should be obliged by your opinion; and I hope some skilful person may be induced to make the requisite experiments.

Lime.
Marl.
Clay.
Vetches, &c. ploughed in.
Horse-dung, fresh.
Horse-dung, old.
Cow-dung, fresh.
Cow-dung, old.
Sheeps' dung.
Pig's dung.
Dung of poultry.
Sugar skimmings.
Refuse of glue.
Shreds of leather.
Shreds of rags.
Refuse of soap-boiling.
Oil cake.
Fish.
Malt dust.
Bones.
Road stuff.
Refuse of butchers' shops.
Refuse of candle-making.
Street dirt.
Urine (of man and animals).
Night soil, dry.
Night soil, not dry.
Whale-blubber refuse.

Now, all these things are known to be useful manures; yet some are much better than others, and contain in one hundred weight as much efficient matter as some of the others do in perhaps ten hundred weight. Now, a knowledge of their relative powers would not only be useful in regulating the quantity to be applied to a given field, but also in enabling the farmer to calculate which it would be most worth his while to carry home from market, or to purchase at a distance; the best of every kind of thing being, as is well known, always the best able to bear the expense of carriage.—*An Enquirer.*

Lance's *Cottage Farmer*, which we have noticed in p. 610., contains many remarks on manures, some of which, we think, would interest "An Enquirer;" but do not answer the specific questions here put by "An Enquirer," which we, with himself, hope some of our correspondents will answer.

Mr. Whiddon solicited to communicate his Mode of taking Impressions of the Leaves of Plants. — Sir, A short time ago, a gardener, whose name is W. Whiddon, visited such gardens at Cheltenham as he could gain admission to, and took impressions of leaves of plants: he left the method with some persons, who are unwilling to make it known. Should Mr. Whiddon see this, I hope it may induce him to lay before the lovers of botany, through the medium of the Gardener's Magazine, his plan for taking impressions, which, by myself, and, I doubt not, by others, will be thankfully received.—*J. Polleck. Market House, Cheltenham, Sept. 3. 1833.*

For Mr. Polleck's using, until Mr. Whiddon has communicated his mode, I will strive to describe a mode once taught me by a man who travelled and sustained himself by teaching it to the mistresses of provincial schools, and any others who would pay him for disclosing it: he pretended to have learned it in India. The leaf-printing apparatus is made as follows, and only practice in using it can give expertness and delicacy of execution. Take two pieces of wash-leather, say of about 6 in. square; put upon the central part of the face of each, when laid flat upon a plane surface, a globular lump or tuft of wool, wadding, or what you will that is soft and elastic; enclose this by gathering the leather, not very tightly, by its corners over it, and tie these inseparably tight together. Your two balls, when made, will have an orbicular outline, and may have what diameter you please, that of mine was about three inches. Upon the bottom of an inverted saucer, &c., place a few pinches of the powder of the colour with which you design to print, and add to it enough of cold-drawn linseed oil to reduce it, with trituration by one of the balls, to the consistence of paint. With the ball so used transfer a thin coating of the prepared paint to the face of the other ball, and give the paint the refinement of a little additional trituration between the faces of the two; then interpose any leaf you like between them, and suffuse both its faces by pressing both balls together upon it; the leaf is now ready to communicate, by pressure, a copy of its outline and veining, to any substance, as paper, &c., capable of receiving the paint, and will, if you please to apply paper, &c., to both its faces, give an impression from each at one pressing. If you print in black, you can colour parts, or the whole, according to nature afterwards. The leaf of Búddlea globòsa *L.*, that of the common culinary sage (*S*álvia officinàlis *L.*), and other wrinkled (rugose) leaves, are those which supply the most characteristic impressions. After all, no practical advantage seems derivable from this knowledge (the knowledge itself is very well), for dried specimens of leaves, and such other flat objects as one can take profiles of by means of it, are far more useful, and as easily prepared.—*J. D.*

What is the Cause, or what are the Causes, of the "Lag" in Timber?—Sir, I happened, a few days ago, to fall into company with a party of gentlemen timber merchants, and, as a matter of course, timber was the pivot of conversation. It turned until it stuck in a lagged stick (as they call it) of timber, when the query arose, what is the cause of the lag? Some said it was the frost that had frozen the sap, and a strong wind, rising at the time, of course split the tree; others said that a tree always split most when it had grown on wet ground; and another said that trees always lagged most when they had grown on high and dry ground, exposed to the strong west wind; and, in the end, "ne dicam dolo" [if I may speak the truth], I thought that they, like myself, knew very little about it. I therefore take the liberty of asking my uncle Agronome, or some other of your numerous correspondents, what is the real cause of the lag in timber. I am, Sir, yours, &c. — *Agronome's Nephew. Near Bewdley, August* 25. 1833.

What is the most profitable Mode of treating a Plantation of young Oak Trees, whose Stems are severally from 3 *in. to* 7 *in. in Diameter?* — Sir, I hope that some correspondent will be kind enough to inform me what is the most profitable mode of treating a plantation of young oaks, of, say, about 3 in. to 7 in. on the side [diameter]. I wish to know whether I should cut them down for bark (which is 8*l.* a ton), and keep them as coppice trees for cutting down for bark at from fifteen to twenty years' growth, and reserve some of the trees; and at what distance the reserved ones should be left, so that, from the whole, a part of coppice and a part of permanent trees may be derived: or, if I should let them all stand to come to useful timber? Does any cultivator of oaks approve of laying down branches from the old stools to increase the number of stools for coppices? and, if he do, at what time of the year should this be done? Or does he prefer planting young trees for that purpose? I am, Sir, yours, &c. — *A Reader.*

Are the Elms in the Champs Elysées, Paris, of the same Species as those in St. James's Park, London? — If they are, how does it happen that the former bear abundance of seed every year, and the latter very seldom? — *H. A. Browne. Camberwell Grove, June* 16. 1833.

The Species of Hawthorn from South America, similar to the British Kind, only an Evergreen (about which Mr. Samuel Taylor enquires in p. 496.), I have no doubt, is the *Cratæ`gus* stipulàcea; which was received by Mr. Young of Taunton, from the late Mr. R. Barclay of Bury Hill, under the specific name of mexicàna. When struck from cuttings (and it strikes freely on a north border, under a hand-glass), it makes a very dwarfish bush; but, when budded on stocks of the common hawthorn, I have known it attain the height of 5 ft. to 7 ft. the first year after the budding, producing pendent lateral shoots all the way up the leader; and so forming a very ornamental plant, but not one calculated for fences, as it is nearly or quite spineless, and slender in its growth: nor does it always ripen the extremities of the shoots sufficiently to enable it to resist our winters unhurt. I have no doubt Mr. Young would be happy to furnish Mr. Taylor with plants of any size, at a very moderate price. — *Henry Laundy. Woodbridge Nursery, Sept.* 2. 1833.

An Enquiry for the most perfect Mode of cultivating the Chimonánthus fràgrans, and the Green-house Kinds of Azàlea. — I should esteem it a great favour from any correspondent, would he inform me of the best methods that I could pursue in the culture of Chimonánthus fràgrans, both in the ground and in pots; the best soil, situation, the different modes of propagation, &c. I have had it frequently in pots, both in a loam and peat soil, but it has always died with me. I observe, when planted out in the spring, the snails are remarkably fond of it. I should also like to be informed of the best mode of culture of Azàlea índica and its different varieties; and also of A. sinénsis; as to the best soil and situation, and as to shade or sun; whether they should be kept in the green-house or out during summer, &c.; the best time for cuttings of them striking root; and whether bottom heat is necessary, &c. I have grown my plants in peat and white sand; but find them all very subject to die, except Azàlea índica phœnícea, which thrives tolerably well with me. — *F. F.*

Where can the true Clove Pink, Yellow Carnation, and Yellow Pink be obtained? — *J. R.*

By what Means can the Cherimoyer (Anòna Cherimòlia *Mil.*, Anòna *tripétala* Lk.) *be induced to bear its Fruit in a British Hot-house?* — I have a fine plant growing in my hot-house, in a border separated from the tan pit. It showed a good deal of bloom last year; some of which fell off without opening, and the rest soon after having expanded: however, as it was the first time of its showing any blossom, I reconciled myself to the disappointment. This year, early in the spring, the plant was covered with bloom buds, which chiefly fell off before any foliage appeared. For some time the plant has now been in fine foliage, and a constant succession of fresh healthy-looking flowers have appeared; but, either in the bud, or just after expansion, they, with their peduncles, all fall off at the point of junction of the peduncle with the branch. There is still a good deal of bloom coming forward upon the plant, and it is altogether in a very healthy and luxuriant state. My gardener has tried various plans with it; he has watered it both sparingly and freely. The heat of the house in which it grows is that which is required for the pine-apple. I shall feel extremely obliged to any one who will kindly favour me with any information as to the mode of fruiting this plant. — *P. D. Liverpool, Aug.* 17. 1833.

A picture of this species is given in Curtis's *Botanical Magazine*, t. 2011.; but we are not aware that any information is supplied there relevant to P. D.'s query. — *J. D.*

Additional Facts on the Turnip Fly, Flea, or Beetle. — In addition to the information on this insect, which (in p. 505.) we have endeavoured to supply in answer to the query of J. C. Farmer, in p. 504. and 505., we have now the pleasure to quote, from the fourth number of the *Entomological Magazine* (published July, 1833), or vol. i. p. 365, 366., the following facts. They are from an interesting communication, expressly on the turnip fly, by Rusticus of Godalming; from whose most excellent communications on other insects generally troublesome, we have already placed extracts, in p. 334. and p. 442., before our readers. In the present case, we only copy from Rusticus's essay that part of it which describes the course he pursued to discover the cause of this insect's appearing, or rather its grub's appearing, just so as to "commence its attack on the turnip directly it is up, devouring the two cotyledons and the little heart; and sometimes, in a few days, leaving the field as brown as the day it was sowed." We recommend to imitation, in every similar case, the cautious care with which Rusticus executed his experiments: — "I first sowed some seeds in a flower-pot, with earth out of my garden: it produced the animal in abundance. Secondly, I enclosed the pot with pasteboard and canvass, with the same success; but there was still a possibility of the enemy getting in, as I had not made the cover sufficiently close. Thirdly, I made a light frame, about 8 in. square, covering it with very fine silk gauze, and carefully stopping the crevices of the door with pasted paper; and round the pot, where the cover was fastened on to it, with putty; so that there was now no possibility of any thing coming to it from without: yet this experiment was attended with the same success. However, one point, that is, a negative point, was now proved; namely, that the fly did not come to the turnip from other plants: this was a point gained. Fourthly, I baked the earth in a cast-iron pot over the fire; and used no water to water the seed but such as I had boiled myself, applying it at the bottom of the pot in a common feeder [or shallow earthen pan]; then I used the same care, and took the same precautions as before: I did not take off the cover until the plants were of a considerable size, and I found them all a-hop with beetles. I had now made another step. That the beetle did not come from other plants, I had found before; but now it was clear that it was not in the earth or in the water. Fifthly, with a lens I examined the seed, and found on it a number of white flattish substances; some seeds were without any; but there were generally one, two, three, four, and, in one instance, five, on a single seed. These I concluded to be eggs; and thought that the only way now left me was to attack them: it would have been easy enough to have poked them off with a needle, but I could not see how I was to employ a needle and a magnifying glass on a sack of turnip seed. I recollected, however, that I had found that some salt and water, into which I had once unintentionally dropped a paper of silkworms' eggs, had killed them to an egg: it was, therefore, worth trying in this case. I accordingly made some pretty strong brine, and soaked the seeds in it for twenty-four hours, and then dried it thoroughly; and, with all the precautions I have mentioned above, I sowed it again, and with a kind of success: there was not a single fly, but neither was there a turnip. Nothing discouraged at this, I tried again and again; and I found that, without weakening the brine, if the seeds were only kept in it three hours, there were no beetles: but yet the seeds came up as well as ever. I now practise this with turnip seed, cabbage seed, and, in fact, with the seeds of all the cruciform flowering plants in common cultivation (all of them being equally infested by the beetle), and with very satisfactory success. I cannot say that I never find beetles on the young plants; but never have a crop destroyed, or even seriously injured, by them. The whole of the experiments mentioned above were made on the Swede turnip; which, I find, is generally more infested by these beetles than any of our older sorts." (*Rusticus of Godalming*, in the *Entomological Magazine*, July, 1833.)

ART. V. *London Horticultural Society and Garden.*

JULY 16. 1833. — *Read.* A communication on the cultivation of the Chlidánthus fràgrans; by R. W. Byres, Esq.

Exhibited. *A*cánthus spinòsus, from Mr. Joseph Kirke. Thirty-two seedling varieties of heartsease, from J. J. Allnatt, Esq., an amateur florist at Wallingford. A collection of georginas, from Messrs. Chandler, Nurserymen, Vauxhall. A collection of roses, including *R*òsa multiflòra, white-flowered, Champney's rose, &c., and of other flowers, from Mrs. Marryatt. Four Fúchs*iæ* globòsæ, heartsease, and georginas, from Mr. George Glenny, F.H.S. A collection of georginas, from Mr. John Maher.

Also, from the Garden of the Society. Flowers: Quisquàlis índica, Gesnèr*ia* rùtila; *L*upìnus ornàtus, mutábilis, and rivulàris; Salpiglóssis integrifòlia *Hook.*, which is Nierembérg*ia* phœnícea of *D. Don*; Clárk*ia* élegans; Calochórtus spléndens, lùteus, álbus, venústus, and pulchéllus; Callipròra flàva; Brown-flowered nasturtium or Tropæ̀olum màjus var. atrosánguineum: *S*álvia Grahàm*i* and foliòsa, Fúchs*ia* virgàta, Coreópsis lanceolàta and Atkinson*iàna*, *C*acàlia coccínea, *Œ*nothèra densiflòra and speciòsa, *A*sclèpias bombýcina, Macleày*a* cordàta (see p. 565.), *S*piræ̀a *a*riæfòlia, Digitàlis ferrugínea, Zínn*ia* élegans, *M*álva miniàta, Calámpelis scàbra; *R*òsa índica Pallavicìn*i*, índica fràgrans, índica sanguínea, *r*ubifòlia, and Champney*àna*, White China rose, Wells's Noisette rose, and rose Clare; Chelòne nemoròsa and barbàta; Pentstèmon rùber, pulchéllus, and *r*òseus (hybrid), raised by the Hon. and Rev. William Herbert; georginas, hollyhocks, and hybrid pentstemons (between Pentstèmon pulchéllus and P. atropurpùreus). Fruit: Muscat Robert pear, Blanquet petit pear, Muscat de Nancy, or Aurate pear, abundant bearers as standards, of little merit besides earliness; Spring Grove Codlin apple, figured in the *Horticultural*

Transactions, vol. i. and ii., accompanied with an account by Sir Joseph Banks; it is the result of one of Mr. Knight's judicious hybridising mixtures; a valuable early sauce apple, fit for use from July till the beginning of September. Sir Joseph Banks's friends agreed that they had not met with any autumn apple, which, for baking, could be compared with this.

August 6.—*Read.* A communication on the destruction of insects in gardens; by Sir George S. Mackenzie, Bart.

Exhibited. Collection of picotees and carnations grown by Mr. Everett, gardener to W. Leveson Gower, Esq. F.H.S., Titsey Place. A collection of georginas, from Mr. John Maher. Dried fruit of a *Cáctus*, and of a species of *Plátanus*, from Miss Martineau. A large collection of German stocks, from Mr. Hopwood of Twickenham. A large collection of German stocks, from Messrs. Rollisson, Nurserymen, Tooting. A collection of georginas, from Mr. T. Hogg, Paddington. *O'*xalis Pióttæ, collection of flowers of roses and of other plants, from Mrs. Marryat. English picotees, heartsease, and georginas, from Mr. Glenny, F.H.S. Grapes from Mr. John Wilmot, F. H. S., and a specimen of a bird trap, from T. A. Knight, Esq.

From the Garden of the Society. Flowers: *L*upìnus ornàtus, Calceolària rugòsa latifòlia, Herbert*iàna*, latifòlia angustifòlia; *S*álvia angustifòlia, *Màdia* élegans, Salpiglóssis integrifòlia, Brown-flowered Nasturtium or Tropæ'olum màjus var. atropurpùreum, hybrid pentstemons, Clárk*ia* élegans, Desmòdium canadénse, Glýcine sinénsis, Catanánche cærùlea var. bícolor, *Ph*lóx élegans, *R*osà índica centifòlia, índica supérba, Rose Bougainville, Noisette, Wells's Noisette, double red Noisette, georginas, and Swiss georginas. Pine-apples: Buck's seedling, Blithfield queen. Fruit of Gaulthèr*ia* *Shállon*. Apples: Red Astrachan, Oslin, Calville rouge d'été, Calville blanche d'été; Large yellow bough, received with various names from America; it is likely to prove a valuable, handsome, early apple, either for the dessert or kitchen use; Duchess of Oldenburgh, from a very young tree on French paradise stock.

August 20.—*Read.* A communication on the growth of the striped Hoosainee melon; by G. J. Towers, Esq.

Exhibited. Double-flowered *A*ntirrhìnum màjus, from J. Church, Esq. A melon from Richard Brook, Esq. A collection of plants, and a melon from Mr. Green, gardener to Sir E. Antrobus; the plants were *Petùnia* integrifòlia or Nierembérg*ia* phœnícea *D. Don*, *P*ancràtium amœ'num and speciòsum, Amarýllis sp., seedling fuchsias, Thunbérg*ia* alàta, Treviràn*a* coccínea or Cyrill*a* pulchélla, balsams, and cockscombs; hybrid Calceolària. Java peach, or Flat peach of China, Wheatear carnations, Magnòl*ia* grandiflòra, and a collection of apples, from Mr. Joseph Kirke, consisting of the following sorts:—Kirke's Duchess of Oldenburgh, Manks codling, Kerry pippin, Early quarrenden, or Sack apple, Hawthornden, Maddock, Nameless, Transparent crab, Scarlet crab, Siberian crab. A newly invented fruit-gatherer, from Mr. Thompson (Lloyd's Coffee-house). A collection of seedling heartsease, from Mr. E. Brown. Fruit of a Caméll*ia*, from John Allnutt, Esq.

From the Garden of the Society. Flowers: *Màdia* élegans; Pentstèmon Richardsòn*ii*, campanulàtus, and *r*òseus; hybrid pentstemons, Zínn*ia* élegans and élegans coccínea, *Œ*nothèra macrocárpa, Cladánthus arábicus; *A'*ster tenéllus, sp. sent home by Mr. Douglas; Heliánthus lenticulàris, Chelòne oblìqua and glàbra, Trachymène cærùlea; Brown-flowered nasturtium or Tropæ'olum màjus var. atropurpùreum, *V*erbèna *c*hamædrifòlia, *L*upìnus mutábilis, rivulàris, and ornàtus; Calámpelis scàbra, Escallòn*ia* montevidénsis, Magnòl*ia* grandiflòra var. præ'cox d'Andry, China asters, Calceolària viscosíssima, rugòsa, integrifòlia angustifòlia, sanguínea, and pulchélla; Russèl*ia* sp. (Otto), *S*álvia pseùdo-coccínea, cardinàlis, Grahàm*i*, and angustifòlia; Blumenbàch*ia* insígnis, Fúchs*ia* virgàta, Phacèlia sp. (Douglas),

Chelòne barbàta, Salpiglóssis integrifòlia *Hook.* [which is Nierembérg*ia D. Don*], *S*olànum pinnatífidum, sp. from Mexico ; georginas, cocks-combs, from Mr. Samuel Hodges, Cheltenham; *H*ibíscus *Mánihot,* and French marigold. — Fruit. Pears: English caillot rosat, a good early standard pear; Deux têtes, French jargonelle. Apples: Summer gilliflower, Rose, Golden pippin, Thorle, Devonshire quarrenden ; Tetofsky, a handsome Russian apple, from the Taurida imperial garden; Oslin. Plums: Superior green gage, an American sort; although a very good plum, yet not superior to the green gage; Mirabelle petite, its merit is for preserving; Diaprée rouge; Nectarine, from a standard, it is very apt to lose its bloom; Goliath; Bifère, fruit green and others quite ripe are on the same branch; Russian globe pine-apple.

ART. VI. *Covent Garden Market.*

	From			To		
The Cabbage Tribe.	£	s.	d.	£	s.	d.
Cabbage, per dozen:						
White - - -	0	0	9	0	1	6
Red - - -	0	2	0	0	3	0
Plants or Coleworts -	0	2	0	0	3	6
Cauliflowers, per dozen -	0	1	6	0	2	0
Broccoli, Purple, per bunch	0	1	0	0	1	6
Legumes.						
Kidneybeans, per half sieve	0	1	6	0	2	6
Tubers and Roots.						
Potatoes - per ton	3	10	0	4	0	0
per cwt.	0	3	6	0	4	0
per bushel	0	2	0	0	2	3
Jerusalem Artichokes, per half sieve - -	0	1	0	0	1	6
Turnips, White, per bunch	0	0	2	0	0	4
Carrots, per bunch -	0	0	3	0	0	5
Red Beet, per dozen -	0	1	0	0	1	6
Horseradish, per bundle -	0	2	6	0	4	0
Radishes:						
Red, per dozen hands (24 to 30 each) - -	0	0	9	0	1	0
White and Red Turnip, per bunch - -	0	0	2	0	0	3
The Spinach Tribe.						
Spinach per sieve -	0	1	6	0	0	0
per half sieve -	0	0	9	0	1	0
Sorrel, per half sieve -	0	1	0	0	1	3
The Onion Tribe.						
Onions, per bushel - -	0	2	6	0	3	0
For pickling, per ½ sieve	0	1	6	0	4	0
Leeks, per dozen bunches	0	4	0	0	0	0
Garlic, per pound - -	0	0	6	0	0	0
Shallots, per pound - -	0	0	6	0	1	0
Asparaginous Plants, Salads, &c.						
Artichokes, per dozen -	0	2	6	0	4	0
Lettuce, per score:						
Cos - - -	0	1	0	0	1	6
Cabbage - - -	0	0	9	0	1	0
Celery, per bundle (12 to 15)	0	1	0	0	1	6
Small Salads, per punnet	0	2	0	0	3	0
Burnet, per bunch -	0	0	1½	0	0	2
Pot and Sweet Herbs.						
Parsley, per half sieve -	0	1	0	0	1	6
Tarragon, per doz. bunches	0	4	0	0	0	0
Fennel, per dozen bunches	0	2	0	0	0	0
Thyme, per dozen bunches	0	3	0	0	4	0
Sage, per dozen bunches -	0	2	0	0	0	0
Mint, per dozen bunches -	0	2	0	0	0	0
Peppermint, per doz. bunch.	0	2	6	0	0	0
Marjoram, per doz. bunches	0	3	0	0	0	0
Savory, per dozen bunches	0	2	6	0	0	0
Basil, per dozen bunches	0	3	0	0	0	0
Rosemary, per doz. bunches	0	3	0	0	0	0
Tansy, per dozen bunches	0	1	0	0	0	0

	From			To		
	£	s.	d.	£	s.	d.
Stalks and Fruits for Tarts, Pickling, &c.						
Vegetable Marrow, per doz.	0	1	0	0	0	0
Gourds, per dozen -	0	1	6	0	3	0
Tomatoes, per half sieve	0	4	0	0	0	0
Capsicums, per hundred:						
Green - - -	0	1	0	0	1	6
Red - - - -	0	5	0	0	6	0
Edible Fungi and Fuci.						
Morels, dried, per pound -	1	0	0	0	0	0
Truffles, per pound:						
English - -	0	14	0	0	0	0
Foreign - - -	0	16	0	0	0	0
Fruits.						
Apples, Dessert, per bushel:						
Kerry Pippin - -	0	3	6	0	5	0
Ribston Pippin - -	0	4	0	0	5	0
Nonesuch - - -	0	2	6	0	3	6
Yellow Ingestrie -	0	3	6	0	5	0
Baking, per bushel -	0	2	0	0	3	0
Pears, Dessert, per ½ sieve:						
Summer Bergamot -	0	2	0	0	3	0
Knevett's Seedling -	0	3	6	0	6	0
Bon Chrétien - -	0	2	0	0	3	6
Baking, per half sieve	0	1	6	0	0	0
Peaches, per dozen -	0	1	6	0	3	0
Nectarines, per dozen -	0	2	0	0	3	0
Apricots, per dozen -	0	2	0	0	3	0
Almonds, per peck -	0	7	0	0	0	0
Plums, Dessert, per ½ sieve	0	3	0	0	5	0
Coe's Golden Drop, per punnet - - -	0	1	0	0	1	6
Baking, per ½ sieve -	0	2	6	0	3	0
Damsons - - -	0	2	6	0	3	6
Mulberries (per gallon (2 pottles) - - -	0	0	8	0	0	10
Berberries, per half sieve	0	3	0	0	0	0
Elderberries, per bushel -	0	5	0	0	14	0
Currants, dessert, p. punnet	0	1	6	0	2	0
Walnuts, per bushel -	0	4	6	0	6	0
Filberts, English, p. 100 lbs.	3	10	0	4	0	0
Hazel Nuts, per peck -	0	1	0	0	1	3
Pine-apples, per pound -	0	3	6	0	6	0
Grapes, per pound:						
Hot-house - -	0	1	6	0	2	6
From the open wall -	0	0	6	0	0	9
Figs, per dozen - -	0	1	6	0	2	0
Melons, per pound -	0	1	0	0	1	6
Cucumbers:						
Pickling per hundred	0	1	0	0	1	3
per thousand	0	10	0	0	12	0
Oranges per dozen -	0	1	0	0	3	0
per hundred	0	7	0	1	0	0
Lemons per dozen -	0	0	9	0	2	0
per hundred	0	4	0	0	14	0
Brazil Nuts, per bushel -	0	12	0	0	16	0
Barcelona, per peck -	0	5	0	0	0	0

Observations. — The prevalence of hot dry weather through the month of August has kept our market short in supply of vegetables, especially turnips, cabbages, and coleworts, which, since the rain, begin to be sent rather more generally, but by no means abundantly; the prices are consequently moderate. The supply has been generally good and regular, with a corresponding demand: in some instances the prices have been low, but generally fair. We have had an excellent supply of Williams's summer bon chrétien, of excellent quality, and at reasonable prices. Jargonelles were not so good a crop. Knevett's new seedling has been in moderate supply, considering the limited extent of its growth at this time. Plums have been a fair, but not a general or heavy, crop: they have been brought to market steadily, and in excellent condition. Damsons are a middling crop; they have been much in demand, at very good prices. The crop of walnuts is most abundant, and now coming to market freely; notwithstanding which, we have received large quantities from Holland, they being somewhat earlier ripe than ours: they have been disposed of very readily at a remunerating price to the importers.

Our prospects for the winter supply have been materially improved by the late warm showers, which will necessarily encourage the growth of all vegetables, although the growers have been put to heavy expenses in keeping their seed-beds watered, for the necessary purposes of transplanting. Turnips, since the rain, begin to promise a good but a late supply. The potato crop is considered to be short, not only from the prevalence of dry weather, but from the circumstance of the sets not having planted well through the season; in many instances, the crop has proved a failure, and has been ploughed up. Our markets are now so generally furnished by water from all parts of the country, that we are almost at all times sure of a good supply; so that it is not likely they will average more than a medium price. Onions have been generally harvested well; the crop but moderately productive as to quantity, the bulbs being generally small, from the prevalence of drought; but they are well ripened. The crop of apples has been very good, but, in consequence of the heavy winds, a large proportion has been blown off, and consumed for cider; consequently, our supplies have not been so heavy as expected: the prices have increased lately, and promise to continue steady; so that the growers will, I hope, have no reason to complain. — *G. C. Sept.* 17. 1833.

ART. VII. *Obituary.*

DIED, in the afternoon of Saturday, August 24. 1833, *Adrian Hardy Haworth*, Esq., at his residence, 10. Salamanca Terrace, Queen's Elm, Little Chelsea; aged 66 years. He was enjoying his usual health, and watering his favourite plants, at seven o'clock in the evening of August the 23d, when he was seized with malignant cholera, and died between three and four o'clock in the afternoon of the 24th. The loss of a man so diligent in useful services to entomology and botany would, under any circumstances, be felt with sensations of sincere regret, by all those who take pleasure in pursuing these sciences; but the loss of him, so sudden and unexpected, at a time when many of us were anticipating the pleasure and advantage of deriving many more lessons of instruction from his labours and kind communications, is painfully appalling.

In relation to the acts of Mr. Haworth's life, I present from vol. ii. p. 11. and 12. of Faulkner's *Historical and Topographical Description of Chelsea and its Environs*, published in 1829, the following succinct account of them: —

" By indefatigable industry in investigating, and by critical acumen in distinguishing the various objects of natural history, everlasting obligations have been conferred upon the admirers of the sister sciences, entomology and botany; and the ample and affectionate testimonials from scientific institutions, both foreign and of this country, spontaneously conferred upon Mr. Haworth, are convincing proofs that his labours have been duly appreciated by the philosophical and learned world, both at home and abroad."

"The museum contains about forty thousand insects, arranged in beautiful and systematic order, in cabinets of peculiar construction; with a select collection of crustacea, radiata, corallinæ, fishes, &c.; about twenty thousand dried plants, arranged in natural orders and glued; and a considerable collection of living succulent plants." . . . . .

"During a period of more than thirty years, Mr. Haworth has contributed largely to various entomological and botanical works, and has been honoured by having a genus and species called after his name." [In botany there are the genus Hawórth*ia*, closely allied to the genus *A'loë*, and Mesembryánthemum Hawórth*ii*, and, doubtless, others: in entomology others. — *J. D.*]

"Among his most important works may be mentioned [I place what supplementary information I possess between crotchets. — *J. D.*]: —

"Observations on the genus Mesembryánthemum, 8vo, 1794. [was out of print as early as 1828.] The first part of Lepidoptera Britannica, 1803; finished in the fourth part, in 1828, 8vo. [Second part, in 1809; third, in 1811; and the fourth and last part, with index, in all about 610 pages, in April, 1828. Wood, in the Strand, is the bookseller who is the proprietor of it]. Miscellanea Naturalia, adjoined to [the first part of] the last work, but separately paged [1803, but was out of print as early as 1828]. The sixth volume of Andrews's Botanist's Repository, 4to, 1803. [? 1804.] Synopsis Plantarum Succulentarum, 8vo, 1812. Supplementum Plantarum Succulentarum, 8vo, 1819. Narcissorum Revisio, adjoined to the last work, but separately paged, 1819. [the price of the two, together, is 10*s.* 6*d.*] Revisiones Plantarum Succulentarum, 8vo, 1821. Saxifragearum Enumeratio, adjoined to the last work, but separately paged, 1821; [the price of the two, together, is 10*s.* 6*d.* Thirty-one communications to Taylor's *Philosophical Magazine*, since September, 1823. Narcissinearum Monographia, appended to the twenty-fifth number of the second series of Sweet's *British Flower-Garden;* but, subsequently, a second edition of the Monographia, corrected and augmented, has been published separately, in an octavo pamphlet, price 2*s.* 6*d.*: see a notice of the work in the *Gardener's Magazine*, Vol. VII. p. 479, 480. and Vol. VIII. p. 212. A new arrangement of the double-flowered Chinese chrysanthemums, with an improved method of cultivating them, in the *Gardener's Magazine* for April, 1833, Vol. IX. p. 218—226.]

"Also various contributions to the Linnæan Society, the Horticultural Society [see his excellent, for the time, paper on the crocuses, in the first volume of the *Hort. Trans.*], and the Entomological Society; to all which Mr. Haworth belongs; and has had the honour to receive [in 1826] *gratuitously* (and altogether unsolicited by him) diplomas for fellowship in the Cæsarean Society of Natural History at Moscow, and [in 1828, previously to August 24.] of the Société Royale d'Horticulture des Pays Bas.

"One of Mr. Haworth's earliest pieces appears to have been a Botanical History of Rhus Toxicodendron, published in the first edition of Dr. Alderson's medical essay on that plant, in 1793. [This was Mr. Haworth's first attempt (as he himself expressed it to me) in print, but he had previously helped Steel to some useful hints for his *Essay on Gardening*, but had desired his name to be concealed.]

I have now the pleasure to add some extracts from letters from Mr. Haworth to myself, respecting plants, which, I trust, will prove both agreeable and useful to my brother gardeners, and neither derogatory to the memory of Mr. Haworth, nor to my own reputation for the liberty I take in thus publishing them.

Accuracy in the application of the names of plants (and of all other things) is ever most desirable, as by means of it ideas past, present, and to come, can be definitely associated with the objects of them: not without it. To apply the names of plants accurately, expensive facilities are requisite, as numerous botanical books, and pictures, and specimens of plants. Provincial botanic gardens can rarely afford to supply these. The Bury St. Edmunds botanic garden could not. In this case my indulgent employer, N. S. Hodson, Esq. A.L.S. &c., superintendent of this garden, favoured my soliciting Mr. Haworth to enter into correspondence with me, for the purpose of authenticating the names of any species, of the accuracy in the application of whose names I might feel any doubt. I made, accordingly, the application to Mr. Haworth: this was done in about May 31. 1828. He consented quickly: I shortly afterwards despatched the first packet of specimens to him, and, on June 24. 1828, I had the pleasure of receiving Mr. Haworth's first letter on technicalities. From him I received, in all, nineteen; and although these were professedly on the technicalities of nomenclature, and so cannot be expected to be very interesting to gardening readers generally, they yet contain, here and there, notices and remarks which I conceive may be so. I present the following extracts (Mr. Haworth had underlined the words which are here given in italics):—

First technical Letter, received on June 24. 1828.—This consisted of the names of those specimens which I had sent without names, correct names for those which I had sent with erroneous names, references to the books and authors with whose descriptions Mr. Haworth had compared and identified the specimens I had sent, &c. In addition to all these things was the following remark:—"Every fresh specimen is most welcome to my large herbarium, which is probably about twenty-thousand species strong; and should you send me other parcels, I shall always be thankful for any new or rare things added, with the hope of their being useful to my herbarium, and so shall I feel rewarded for the trouble of examination."

Second Letter, July 17. 1828.—A long one, replete with scientific information.

Third Letter, received July 2. 1828.—It contained, besides technical information, most excellent advice, in reply to a request for it, on the arrangement of, and points of information to be embraced within, a second edition of the catalogue of the plants in the Bury garden, which Mr. Hodson then contemplated publishing: it has not, however, yet been published. The following incidental remark occurred in this letter:—"James Don, of the Cambridge Botanic Garden, was my old friend, whom I visited almost annually up to his death: he had very few plants he did not spare me a specimen of; I have very many wild ones, and I have gathered still more in the London gardens, although of late years far fewer than before. Hence your offer of sending me specimens of the *newly introduced* species is *very acceptable*."

Fourth Letter, received August 3. 1828.—"I have the honour of corresponding with the Prince de Salm Dyck, at Dyck, in Prussia." [See *Gardener's Magazine*, Vol. IX. p. 460.] . . . . . "The *Revisiones Plantarum Succulentarum do not* contain all the plants of my other works, but chiefly new species, or improved locations, or accounts of old ones." . . . . . . "After this follows, in your letter, Mr. Hodson's kind intention, of complimenting me, by making me an honorary member of the Bury botanic garden. I beg of you to say to him, I feel exceedingly obliged by so flattering a compliment, and that I will endeavour to prove myself worthy of it." . . . . "Now, Sir, here end all your queries, you have truly in this *multum in parvo* — but my eyes ache, and we must have larger paper in future."

Fifth Letter, received August 24. 1828. — "As an old botanist, I love most dearly *my first sight* of a plant that is *new to me*. And as your object is to send chiefly things that *quite puzzle* you, a few must appear riddles to *me*, and I *shall have*, or *have had*, all the pleasure of solving them. Besides, every packet is a sort of lottery, in which any new plant is a *prize!* Hence you will see my zeal is at least equal to your own. I once was near joining with a *public* botanic garden here, and I *much regret* it fell to nothing. Alas! we have *now* not one *public botanic garden* left *near* the metropolis of this rich kingdom; and yet I think such a thing would pay well. . . . Paper's short, — now aid me, spirit of clearness and brevity!" . . . . "About some of your specimens I will decide in November or December next; when I propose incorporating all my more newly acquired specimens with the glued ones; and when many of your *well-grown* examples will be added, to amend or extend the collection; in which every specimen is acknowledged from whom, or what garden, it came; and when, as far as possible. I have been about 40 years amassing them. A few odd ones were even gathered still earlier, when I was a boy. I was a *gardener*, practically, at seven years old." . . . .

"I will prove any crocuses, colchicums, or any other hardy bulbs you like to send, as I know them well, am fond of them, have grown most of them, and now have many." . . . . "You say you know Mr. Thomas Bridges, who is gone to Chile. If you, or any of your very intimate friends, are writing to him, please to say to him, I will buy specimens of plants of him on his return. I told him I should only buy insects. And now botany takes up so much of my time, I shall, perhaps, drop entomology.

Sixth Letter, dated October 29. 1828. — "The delays you apologise for have, I fear, infected me with delaying likewise." . . . . .

"*Mem.* I actually inspect and examine every page and plate referred to, so that you may safely *print* any you like to publish."

Seventh Letter, dated November 29. 1828. — "I have near 20 species of *Erýngium* in my herbarium." . . . . "I have glued down, almost always, at least a portion, often the whole, of every number you have sent; for, as Mr. Hodson has thought me worthy of being one of your honorary members, I feel it my duty to authenticate, at all times hereafter, every thing in my power concerning your garden, and my herbarium will prove the names (should the plants die) of all you have sent to me, together with their locations, durations, and periods of bloom."

Eighth Letter, dated December 13., received December 16. 1828. — "Having stitched all your letters chronologically together." . . . . . [This extract may seem not worth giving, but it shows that Mr. Haworth applied system even to his correspondence. — *J. D.*] . . . . . . "Mr Sweet, to whom I showed your plant, when it was alive." . . . . . . "I must have (in herbarium) above threescore species of *Œnothèra*.". . . . . . . "*O'*xalis corniculàta α Linn. *Sp. Pl.* is the original British kind, and I obtained British roots of it, about 40 years ago (where native I know not), from Mr. Knowlton, the grandson of *old* Thomas Knowlton, who was gardener to Sherard when the celebrated *Hortus Elshamensis* was compiling. I had also the Dillenian mesembryanthemums, from the same source, and through Oxford gardens, where Dillenius was professor." . . . . "I love the *O*xálides." . . . . . "I have now answered your numerous questions; and, happy in being thus instrumentally useful towards the welfare of a beautiful science, I am, with very respectful compliments to Mr. Hodson, yours, &c.

Ninth Letter, dated March 27. 1829. — "As to the *Cròci* and *Narcíssi*, you gave me in autumn; they have, *perhaps*, done a good thing, in actually stimulating me to re-examine all my own lately much neglected collection of hardy bulbs (a very good one); to reprint their labels and set them to *rights*." . . . . . "If you have flowers of any other hardy bulbs, that you wish examined this season by me, I will settle any such you like to send."

Tenth Letter, received May 24. 1829, dated May 20. — Contains an abundance of technical information, and as much pleasantry as technicalities admit, and the following observation, which will show that Mr. Haworth's spirit was not of the imperious and self-sufficient kind: — "*S*axífragæ want again revising. I have *reduced* them too much, owing to my good friend Mr. Bree's sending me *many* wild British ones, and saying he thought them varieties; but he afterwards *candidly* told me, he *picked out strange specimens* to *puzzle me*." [Mr. Haworth's work on the species of *Saxífraga* and the allied genera, which is entitled *Saxifragearum Enumeratio*, is dedicated to the Rev. W. T. Bree*, Allesley Rectory, near Coventry, Warwickshire. — *J. D.*]

Eleventh Letter, received June 16. 1829. — "I prefer moderate-sized specimens to large ones, if from a garden, but I collect the finest wild ones I can." . . . . . "But I am so hurried and overwhelmed just now with (voluntary) business, attending several sales, watering plants in pots, for I have no gardener, &c." . . . . . "I have just been to Mr. Sweet's, about two miles off, who showed me the figure of . . . ."

Twelfth Letter, July 6. 1829. — "I have given up purchasing insects, and shall in future devote my leisure to botany and gardening."

Thirteenth Letter, July 27. 1829. — "I was out for eight or ten days when your specimens arrived, but Mrs. Haworth (who is fond of plants) had, by my return, made excellent dried specimens of them." . . . .

"A new green-house, or hardy succulent, is very welcome to me. So, too, would more tender ones be, could I afford to build a stove; but 'all men cannot do all things.'"

Sixteenth Letter, September 29. 1829. — [I had at this time, a conception that epithets, like those which follow, are very undesirable in botanical nomenclature. In reply to a hope I had expressed to Mr. Haworth, that he had not devised them, he humorously replied as follows. —*J. D.*] : — " *Verónica neglécta* and *Saxífraga intácta* are *not* of *my* naming, and although I am not passionately fond of such names, we may as well call the O'xalis, that has bewildered you so much, 'puzzle-peg.' " . . . " The *last* general work ever ought to be the best, *simply* because time alone is the *best* corrector of errors." . . . . " The seeds you mention I have forgotten all about, and may add, seeds and roots, save of bulbs and of succulents, are almost thrown away upon me, as I have no room in my little garden *here* to grow them."

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* I cannot allow myself to fear Mr. Bree's disapproving the liberty I take in introducing here some extracts from a letter lately received from him: it is dated September 3. 1833, and was not written for publication. "I was exceedingly shocked, on receiving my *Magazine of Natural History* [the number for September] yesterday, to see announced on the cover the death of my poor friend Haworth: half an hour afterwards, I got your packet containing Mr. Main's confirmation of the melancholy event, and to-day's post brought me a letter from his son, with the same sad intelligence. Though he was now advanced in years, I had hoped to enjoy his friendship and agreeable correspondence for some time to come: but God's will be done! The last letter I had from my friend bears date only the 25th of July, and it accompanied a large collection of cuttings of all his spareable Chinese chrysanthemums, which have hardly yet taken root. I shall long and deeply feel his loss. . . . . . . Our friend's acuteness in discovering nice distinctions in species and varieties surpassed every thing of the kind I have ever seen, and, indeed, was carried almost to a fault. You know, I believe, that he was originally designed for the law, and was for some time with Mr. Frost, a solicitor at Hull, I think; but he early gave up all professional views, and devoted himself to natural history." . . . . .

Seventeenth Letter, dated February 25. 1830. — . . . . . " The late very long and heavy winter has, I am sorry to say, destroyed an unusual number of my green-house succulents; some of which, I think, will never be seen alive here again, in my time. But I console myself in having dried specimens of them; and this leads me to speak of *your* specimens of last summer. Most of *those* I dried *very* well, and where they were not too luxuriant, I have glued one of most of them, even though I had them before; preserving your numbers (and *tickets of all you wrote the names of*), so that I can refer to almost any number you, retrospectively, may enquire about. When you send more, go on, *currently* with the numbers, *very carefully* (for you sent no *ticket* number 320, but two, and distinct species, of 321, though both numbers are in your letter). Ticket and number every species. Select moderate, or *smallish garden* specimens (which look like *strong* wild ones) and with fruit and flower, and even root, where practicable and not too large; with every information of country, duration, and introduction; and, when known, any remarks or reference to figure or page, where reputed to be described.— Keep *up* to *this*; and I will settle for you as much as my leisure will possibly allow." [The expressions " country," date of " introduction," &c., render it not improper to say that these were made in relation to species raised from seeds most kindly contributed to the Bury Botanic Garden, by Mr. Hunnemann, 9. Queen Street, Soho Square, London; by Mr. Christopher Abraham Fischer, inspector of the botanic garden in the University of Göttingen; and by others: from these seeds plants new to, or rare in, this country were occasionally produced. See in p. 111. 113. and 240. of the present Volume, Mr. Cameron's rich list of newly introduced species, raised from these and similar sources. — *J. D.*]

Eighteenth Letter. — Wholly technical.

Nineteenth Letter, dated May 22. 1830. — . . . . " I have described *at large* the, your two wild, Suffolk Cròci, for the Supplement to *English Botany*, and they will be published on the 1st of June next. I have also described a new Mammillària for the *Botanical Register*, which will be out in June, and have likewise written a sort of advertising enquiry about the *lost* hardy bulbous plants of our great grandfathers, in the *Gardener's Magazine* for June next. [See Vol. VI. p. 368., also Vol. VII. p. 247. — *J. D.*] So you will find I have not been idle. I have had the like occur (three different pieces on natural history, in three different periodicals, in one month) twice before in my time." . . . . " When you come, I shall be exceeding glad to see you here, and to give you every facility and information in my power respecting any thing that may serve your views." [This, my deceased friend, Mr. Haworth, did to the full, and, as long as he lived, was very kind to me. — *John Denson.*]

THE

GARDENER'S MAGAZINE,

DECEMBER, 1833.

ORIGINAL COMMUNICATIONS.

Art. I. *Notes on Gardens and Country Seats, visited, from July 27. to September 16., during a Tour through Part of Middlesex, Berkshire, Buckinghamshire, Oxfordshire, Wiltshire, Dorsetshire, Hampshire, Sussex, and Kent.* By the Conductor.

(*Continued from* p. 529.)

Stoke Farm, Lord Sefton. — The grounds are not very extensive, and they are perfectly even, or uniform on the surface, having a gentle slope towards the south. The house consists chiefly of an addition made some years ago to a farm house; and, taking the place altogether, it is appropriately named. The house differs decidedly from those of the two preceding places, it being entered on one side instead of from behind, so that the principal beauties are shown from the approach road. There is a very neat flower-garden by Mr. Repton, which is kept fully stocked with pelargoniums and other showy free-flowering green-house plants. There is a very useful object here, which deserves imitation in all warm situations; viz., a large recess in a wing, connected with the house by a veranda open to the south, and furnished with tables, chairs, &c. In this loggia, as the Italians would call it, the family, when by themselves, may pass the greater part of the day, during the heat of summer. Windsor Castle, the usual distant feature of the seats in this neighbourhood, is seen from this alcove, beneath the branches of spreading trees. On the lawn opposite the entrance front are some raised beds of flowers, with ivy edgings, which have an exceedingly good effect. Indeed, we do not know any edging which looks better, or is more suitable for flower-beds on the entrance front; and none is cheaper, either in the first formation, or in after-keeping. Among the flowers, Wall's seedling georgina was pointed out to us as being the only variety of this splendid flower which is sweet-scented. Mr. Wall is a nurseryman at Uxbridge. The young ladies here amuse themselves by cutting off the decayed flowers, for containing which they have very neat deep baskets of wickerwork, painted green. No amusement can be more appropriate, or more effective in making the flower-garden look well; and we wish we could see the practice universal. Some ladies, however, who pretend to admire flowers, will suffer decayed roses, dead leaves, and seed pods to remain on plants under their drawing-room windows. We sincerely wish that we could infuse a greater taste for order and neatness into all such persons. The kitchen-garden was the object of the greatest interest to us at Stoke Farm, from its being under the management of our early, and now too seldom seen, correspondent, Mr. Oldacre. As we expected, the crops of every kind were excellent. We were particularly struck with the great breadth devoted to late peas, which looked so remarkably well, that, considering the extraordinary dryness of the season, we could not help asking Mr. Oldacre if he had any particular method of watering them? His answer was, that he never watered them at all after they were above ground: he sowed them in the bottom of drills 6 in. deep, filled the drill half full of soil, and then gave such a thorough soaking of water as to saturate all the soil under and about the seeds. After this he fills in the remainder of the earth; and, the whole compartment being now dry in appearance, he rolls it quite smooth with a heavy roller, and gives no other culture of any kind, till the peas are fit to stick. Among the wall fruits, Mr. Oldacre pointed out Salter's improved Moor Park apricot. He also remarked that the violet hâtive nectarine was better than the elruge, as the latter is apt to wither and become insipid when fully ripe. The green gage plum always cracks on a south wall; and Mr. Oldacre therefore prefers an eastern exposure for this delicious fruit. He has raised a new seedling scarlet-fleshed melon, with a smooth silver skin: the plant is a great bearer, and the fruit is of superior flavour. Early cucumbers are grown here and at Stoke Place, in an improved form of M'Phail's pits, on trellises, about 4 in. under the glass; the trellis being about a foot above the soil. By this plan they can be more easily managed in the winter season: there is less danger from overheating in the dung-bed, and much less risk of the plants damping off from vapour arising from the soil. The improvement was made by Mr. Patrick, who formerly lived at this place, and who has promised us a plan and section of the pits. All the houses and most of the pits here are heated by hot water. There are a good many hedges of spruce fir, which, when not too severely cut, lasts many years; and there is a wall of loose ragstone, covered with ivy, which makes a very handsome evergreen fence. Mr. Oldacre has had the plantation which sheltered the north side of this garden removed to the distance of 300 ft. from the walls, as, when it was within 50 ft. of them, the birds were found to destroy almost every thing in the garden. This is an improvement wanted in very many gardens.

Burnham. — Near this village is a small villa in the castellated Gothic style, faced with beautiful white Stourbridge brick, in tolerable taste; but the grounds are badly arranged, and neglected. We entered this villa through the grounds belonging to a very pretty cottage occupied by a Mrs. Jackson. The passage is under a veranda, which, beyond the house, changes to an arcade of climbing plants; through the openings in which are seen groups of flowers on lawn.

Dropmore, Earl Grenville. — *July* 31. Beautiful as this place always is, it has been very much improved since we last visited it in 1826. (See Vol. III. p. 257. and p. 481.) Mr. Baillie has been succeeded by Mr. Frost, a most active and intelligent young man, well fitted for such a situation. A new entrance lodge has been formed on the Burnham side, covered with trunks of trees, in the manner of a Russian log-house, with a chimney top in the style of those of Venice; rather an incongruous assemblage, which forms a false note of preparation for a place which, in other respects, is generally in consistent taste. We were first shown into the range of flower-gardens, which forms a line with the lawn front of the house; and certainly there is nothing of the kind in a flat situation, that we know of, superior to it. In point of picturesque beauty, the flower-garden scenery at Redleaf, Montreal, and Bromley Hill, is much finer; but the flower-garden at Dropmore shows what may be done by art on a surface wholly without natural advantages. The effect is produced by the arrangement of the beds, and by the distribution of pedestals with vases, statues, and other sculptures, and by therms and other mural and architectural ornaments. To connect the whole with the house, there is an architectural wall, with an open Italian parapet in the front of its border in one place, and in others various hot-houses, which are placed against it. The vases and sculptures are partly of real, partly of artificial, stone, and partly of china-ware. There are benches with carved backs, made of wood, but painted and sanded in imitation of Bath stone, which are particularly good; as are a number of Austin's vases, fountains, candelabra, and other ornaments; as well as a manner of forming pedestals of open brickwork for supporting sculptures. The parapets are of artificial stone, or brickwork covered with cement; the wall against which the hot-houses are placed is of brick, covered with trelliswork; and the hot-houses are of wood, painted green. This green colour in the hot-houses and the trellises is what we can never reconcile ourselves to: it detracts from the avowedly artificial character of the rest of the scenery. We shall not offer a single argument on the subject, but simply state our own feelings, which have always been the same ever since we saw, in 1806, the pea-green hot-houses of Mr. Hare (now, we believe, Sir Thomas Hare), at his seat in the neighbourhood of Downham, in Norfolk. The reason of our dislike can only be found in the want of harmony between this green and the green of nature. Let the woodwork of the hot-houses at Dropmore be imagined of a stone colour, or of the colour of any kind of timber, or even brown or grey bark, and how different would be the effect! In walking through the grounds, we were everywhere, as in 1826, charmed and delighted; and we were still more so now than then, at finding the number of rustic stands, vases, &c. diminished. The pinetum has received numerous additional species, and the sorts which were rare in 1826 have now attained a considerable size, and some have been found hardier than was expected. We particularly allude to Cunninghàm*ia* lanceolàta and *Araucària* imbricàta, both of which are found so hardy as to stand here without protection. We could enumerate a number of species, with the sight of which we were much gratified, but we refer our readers to Mr. Frost's article on this subject (p. 559.). It is almost needless to state that in the flower-garden were to be found all the new, rare, and beautiful hardy flowering plants. We were particularly struck with the number of plants of that gorgeous iridean bulb, Gladìolus natalénsis (psittacìnus), splendidly in bloom; *Màdia* élegans, *Petùnia* phœnícea, Calandríni*a* grandiflòra, and *V*erbèna venòsa, which produces underground stolones, and is particularly fitted for filling a bed in a very short time. Tournefórt*ia* *h*eliotropioìdes is likewise well adapted for beds, and also Nicot*iàna* longiflòra, which we found profusely covered with odoriferous flowers. The day being cloudy, the œnotheras had a splendid appearance. The masses of Campánula carpática in some places, and of *Verbèna chamædrifòlia* and of the common clove in others, had a most brilliant effect. There is a large compartment of standard roses, the highest of which, in the centre, is 15 ft., and which slope down on the sides to 5 ft. Mr. Frost is endeavouring to naturalise many plants, both annuals and perennials, in the woods, by planting and sowing there all his spare plants and seeds. It is incredible what may be done in this way, since it has been proved that the seeds of some stove annuals will remain in the open ground during our winters, and come up and flower vigorously during summer. Viewing the subject in this light, we see no reason why the common pelargoniums, some of the fuchsias, balsams, and many other plants of warm climates, should not be treated as hardy annuals, as well as nasturtiums, marvel of Peru, &c. Perhaps many such annuals may be naturalised in the warmer parts of the island. But we shall not attempt to go into details. Stuártia virgínica *Dec.* (Malachodéndron *L.*) is now magnificently in bloom here, as are various plants in the hot-houses and conservatories.

Cliefden House, Sir George Warrender. — The house was burned down many years ago, but is now rebuilding. We suppose the elevation is nearly a *fac simile* of the house that was burned down, otherwise we are at a loss to conceive how a modern architect could introduce half columns and an architrave in the manner here done in the basement story. The original terrace, which remained uninjured, is a noble object, upwards of 25 ft. high, and 363 ft. long: it commands extensive views of the Thames and of the country beyond, and descends, by a magnificent double flight of steps, to a lawn; intended, as Mr. Dodds, the gardener, informed us, to be laid out as a flower-garden. If so, as it is at a considerable distance from the eye, and quite beneath it, it ought to be a flower-garden of dwarf-growing select shrubs. The flower-garden of herbaceous flowers might be in front of the conservatory. Perhaps it will be thought that the latter space is hardly ample enough for such a purpose; but let it be kept in the very highest order, and it will be found to produce more beauty, and to give more satisfaction to the owner, than one ten times the size kept as such gardens generally are. The entrance front is, very properly, on the opposite side to the terrace front: it is approached by a straight avenue, passing over table land, and entering the court of honour through iron gates. To the right and left are advancing wings, and high walls enclosing the old kitchen-garden and offices on the one hand, and the flower-garden and conservatory on the other. The place is in a state of regeneration, therefore we shall say very little about it; but we cannot let pass the shed-like conservatory which forms one wing of the house, as seen from the terraced front: it is mean, and altogether unarchitectural. Mr. Dodds is a great amateur of calceolarias, and has raised some new and valuable varieties. He also showed us a new species of nasturtium, raised from seeds obtained from Italy, quite distinct from any which we had before seen.

Hedsor House, Lord Boston, stands by itself, unconnected with offices or architectural appendages, on the top of a high bank on the one side of an extensive park; and, at a distance, strikes a stranger as a most dreary object. We hardly know any country seat that conveys so distinctly and impressively the idea of pride and poverty. We believe this to be the very reverse of the real state of the case; but we think it right to state what our first impressions were. Hedsor House is situated on the brow of the same bank as Cliefden, but it is most unfortunate in its approaches, which are steep to a degree that is scarcely tolerable. The evil might be remedied most readily by lengthening the road, for which there is ample space. The parish church is in the park, close to the approach road. We noticed that all the tombstones were laid flat, and the surface kept as level and smoothly mown as a lawn. This looks like the exercise of undue influence over the poor; for surely *all* who bury in this churchyard would not wish to have the gravestones flat, if they were allowed the free exercise of their will. It was, however, surrounded by a hedge, which is something better than the churchyard at Arley, the seat of Lord Mountnorris, near Kidderminster, where all the tombstones were buried in the night-time by his lordship, the boundary fence thrown down, and the whole levelled, and united with the lawn. This we mention on the authority of the late Mr. Mowbray, curator of the Manchester Botanic Garden, who was his lordship's head gardener at the time alluded to, and carried the work into execution. Thus much we must say of Hedsor, that it was in excellent order and keeping, with the exception of the walks being sunk and the edges harsh. There was little attempt at display in respect to flowers, or rare or curious plants; but, what we think a great deal better, there was a general spirit of neatness and order which pervaded the whole. We only saw the exterior of the kitchen-garden, the head gardener being from home.

Wooburn House, Sir Griffith Wilson.—A most agreeable and varied road leads to the village of Wooburn, near which is the seat of Sir Griffith Wilson. The surface is flat, on the banks of a rapid stream; and the only thing that we saw remarkable was a row of very tall and thick-trunked Lombardy poplars, growing very close together by the roadside. We agree with our indefatigable correspondent, Mr. Howden, that admirable fences might be formed of Lombardy poplars, or other trees, planted closely together in rows: indeed, this is already done in various parts of France, Italy, and Germany.

A Garden at one of the Paper Mills at Wooburn struck us, in passing, as remarkably beautiful. There were the rushing waters clear as crystal, shaded by noble trees; a lawn varied by numerous groups of the choicest flowers, including some fine Chinese roses; and a picturesque elevation of a dwelling-house, with a porch and veranda. What added to these charms was, that the whole evinced the highest degree of order and keeping.

Hall Barns, near Beaconsfield, Sir Gore Ouseley. — This place is chiefly celebrated as having been once the property of the poet Waller: it has been lately sold to Sir Gore Ouseley, who is making a large addition to the house. There are two parallelogram ponds in the grounds, which may very well pass for imitations of the tanks of Persia and India, and we are curious to know what Sir Gore will make of them. All that has been hitherto done are the formation of some beds of flowers, and the pulling down of a banqueting room, to turn it into a dairy. The gardener's name is Smith, and, as far as he is concerned, he seems to have done his part well.

Little Hall Barns, —— Cundee, Esq. — This is a small place, close to Beaconsfield, where the last occupier of Great Hall Barns used to reside occasionally. From what we saw of it over the pales which separate it from the public road, it appears to be in very high keeping; and we were informed that, besides an excellent collection of plants, it has an aviary, a menagerie, and a museum of natural history.

The Churchyard at Beaconsfield is chiefly remarkable for containing the tomb of the poet Waller, which occupies a most unpoetical extent of surface; and, what is worse, this surface is paved with flagstones. The tomb is in the form of a parallelogram chest, with drapery, cut in stone, hanging down on each side and at the ends; as if, after the body had been deposited in the chest, a pall had been thrown over it, and then the lid put on. The effect is good. On the centre of this lid is a small obelisk, or pyramid, containing the inscription, arms, &c. Out of one side of the surface of the pavement which surrounds this tomb rises a walnut tree, at least 18 in. in diameter at the ground; but whether planted, or originated by accident, we could not learn. Along one end of this churchyard there is a row of houses, with narrow gardens between them and the graves; a circumstance producing, in our minds at least, a peculiar kind of melancholy. Burke was buried in the church; but, as we hate interments of this kind, we did not visit his tomb. There is a yew tree, cut in a very odd form, in Beaconsfield churchyard, for which we could discover no reason, not having been able to find the clipper, Mr. Tripp. We should be much obliged to Mr. Smith of Hall Barns, if he would make enquiries, and let us hear from him on the subject.

Bulstrode Park, the Duke of Somerset's; and Denham Lodge, the Seat of —— Hamlet, Esq., the eminent goldsmith; are both partially seen from the road. The former has, within the last few years, lost many of its finest trees; but the latter stands nobly forward, supported by a phalanx of wood. Had the idea of supplying water by steam been proposed to the late Duke of Portland, he would probably have rendered Bulstrode as distinguished for its waterworks, as it was noted for its want of water. Denham Lodge, we were informed, is kept in good order; but we had not time to call.

Wall's Nursery, Uxbridge, is chiefly remarkable for its collections of flowers, and for some new varieties raised there. Mr. Wall's sweet-scented georgina, we are told, is one of the most valuable plants of the genus. There is a very good assortment of trees, shrubs, and herbaceous plants, independent of florists' flowers: and, altogether, this may be considered as a respectable country nursery.

The Inn at Southall has a small garden and a tulip bed; and the window of the bar is filled with green-house plants, the landlord and his daughter being both remarkably fond of flowers. Circumstances of this kind are highly gratifying to us; and are only second, in the impressions which they make, to those which we receive on witnessing care and attention bestowed on cottage gardens.

Oakbrook Cottage. — *Aug.* 3. This is a handsome Gothic cottage, with a tiled roof; the stable and other offices belonging to it having thatched roofs: the whole displaying considerable taste, and being very neatly finished. Taken altogether, it is the very handsomest thing of the kind between London and Brentford. Though the surface on every side is naturally flat for a considerable distance, yet, the buildings being placed on a highly raised platform, the gardens and grounds slope on every side. The garden is carefully planted, and displays a considerable number of the new flowers and shrubs.

In passing through Brentford, there is a house on the left which deserves notice for its beautiful lawn, sloping from the street to the Thames. It is so closely shaven, and altogether so highly kept, that we observed, on one occasion, a maid-servant on her knees, cleaning the turf with a hand-brush.

Spring Grove, formerly the seat of the late Sir Joseph Banks, is now the property of Henry Pownall, Esq. This gentleman has considerably improved the grounds by removing a wall which separated the kitchen-garden and part of the pleasure-grounds from a moat; and by turfing a part of the kitchen-garden, and laying it out as pleasure-ground. We observed some of the new plants introduced by the Horticultural Society thriving beautifully in the flower-beds; and some of the new pears, particularly Chapman's, grafted by Mr. Oldacre on the branches of old trees, producing abundant crops. Mr. Hutchinson, the present very intelligent gardener, is of opinion that standard fruit trees, with long-extended, depending, or dangling branches, which can be moved in all directions by the wind, are always more likely to produce fruit than trees with branches fixed against walls or espaliers; though they may not always be able to ripen their fruit equally well. Every one who has seen this place, even from the road, in Sir Joseph Banks's time, must recollect the fruit trees, with their branches trained downwards, from the top of the wall. This wall being now removed, some of the trees which remain have a very singular appearance: we can only compare them to leaves of the Boráſsus flabellifórmis, with their footstalks stuck in the ground, and the greater part of the palm of the leaf turned downwards. There are here beds of the American cranberry, in dry soil, not peat, bearing abundant crops. Mr. Oldacre built a small pit in the melon-ground for growing his favourite St. Peter's grape. On enquiring for this pit, we were informed that, the glass roof having been removed, the walls were raised; and it has been turned into the head gardener's house. This is one of the most economical and ingenious modes of procuring a gardener's house that we ever heard of; but we cannot say much in favour either of its commodiousness or its comfort. Both the head gardener here Mr. Hutchinson, and his foreman Mr. Adamson, are naturalists; both have collections of indigenous shells, and the latter has a small cabinet of British insects, collected, arranged, and named by himself.

On the bridge at the sixteenth milestone, and on various other bridges near London, there are copings of cast iron; which we cannot but consider as in bad taste, and by no means likely to last so long as stone, brick, or Roman cement.

Love Hill, Langley, —— Beaumont, Esq., is a small place, with some good trees of the last century on the lawn before the principal front; which, however, is not shown to strangers. We could only see the trees from the road; though we were shown the kitchen-garden by the present worthy gardener, Mr. White.

Langley Park, R. Hervey, Esq., is a flat place of great extent, with a number of fine old oaks and elms, a piece of water, and an appendage to the park, called the Black Park; the latter being wild and picturesque. Fifty years ago, when this place belonged to the Duke of Marlborough, it was kept in high order; but at present it is comparatively neglected. At that time there was a private road from the house to Windsor, through the duke's property, and the park at Ditton, near Datchet, belonging to Lord Montagu. In the kitchen-garden at Langley we observed some young fruit trees planted on hills raised 3 ft. above the surface. Mr. Stephens, the gardener, not being at home, we could not learn exactly the object in view; but we have little doubt it was the same as that of Mr. M'Donald, at the Dalkeith gardens, viz., to prevent the roots from getting so soon down to the subsoil, which always produces canker. The water in the park is good in regard to form and extent; but it wants a margin broken with gravel or stones, to relieve the monotonous effect produced by its close contact with the green turf. Two raised beds, bordered by basketwork, have been recently formed, in imitation of those in the flower-garden at Windsor Castle.

Ditton Park, Lord Montagu. — The surface is perfectly flat, but it is varied with abundance of fine old elms. The house, which is castellated, and was rebuilt, a few years ago, by Mr. Atkinson, is surrounded by a moat. It has altogether an excellent effect: and there are a very appropriate chapel, gardener's house, and two lodges; all built or repaired by Mr. Atkinson, who excels in castles and Gothic cottages; and, to satisfy us, only requires to give a little more boldness and freedom to his chimney tops, gable ends, and other prominent parts in the sky outline. Many convenient and comfortable cottages and villas are entirely spoiled as picturesque objects, for want of a continued attention to the "bold and free" in the production of their outlines. The kitchen-garden contains four acres, and was formed, about twenty-two years ago, by the present gardener, Mr. Anderson, a pupil of Mr. M'Donald of Dalkeith, who has been gardener here during a period of twenty-seven years. The wall trees, he told us, did remarkably well for some few years after planting, till their roots got down to the gravel, which lies 2 ft. below the surface. The apricots on pear plum stocks gave way first; but those on muscle plum stocks remain good to this day.

Many of the trees in the open garden are cankered. The reason, in our opinion, is, that the borders have been cropped too severely, and too deeply dug; and the same reason applies to the quarters, where, in every garden, we are decidedly of opinion there ought to be no fruit trees at all. Considering that in this garden, as in most others, the number of hands has been lately much reduced, we found it in tolerable order. Mr. Anderson pointed out to us some sycamore trees here which every year are covered with honey dew; which dew, dropping on the shrubs beneath (such as box, holly, &c.), occasions their leaves to become black, and their branches to be covered with lichens; while shrubs of the same kinds, not under the drip of the sycamores, are perfectly healthy.

Frogmore Lodge, the Princess Augusta. — We have so often before mentioned this quiet retreat, that we shall have very little to say of it at present. It is in good order; and there is a fine display of the flowers of the season. We particularly noticed a collection of picotees and carnations, raised from German seeds, which we brought over for Mr. Ingram, from our correspondents at Stutgard, M. Hertz and M. Bosch, in 1829. Among these are a number of new and beautiful varieties. We observed also some new calceolarias, hollyhocks, and georginas, raised by Mr. Ingram; and fine collections of that fashionable flower, heartsease. We measured the trunks of two fine evergreen oaks in the pleasure-ground, and found one, at the height of 2½ ft. from the ground, about 10 ft., and the other, at the same height, about 12 ft. in circumference. There is a neat Swiss seat now erecting near the lake, which has been lately cleaned, and two large pikes, which had devoured almost all the other fish, one weighing 19 lbs. and the other 22 lbs., were taken.

Vare's Nursery. — Observed a remarkably fine *Tècoma* radicans màjor, the blossoms larger and more abundant than any we ever saw, with the single exception of a small one at Ditton Park. Macleày*a* in flower, upwards of 10 ft. high, and very showy. A purple and white *A*conìtum; a new and rare hybrid, very splendid; a dwarf georgina (dénsa), which never exceeds a foot in height. Various other plants, and a good stock of very fine yuccas, which have several times flowered splendidly in this nursery.

Forest Hill, —— *Riley, Esq.* — *Aug.* 4. A small place, without any pretensions to natural beauty; but with a lawn tastefully laid out, and planted and kept in the highest order, by the present gardener, Mr. Brown. The standard roses in the lawn are placed in the centre of dug circles, about 18 in. in diameter; and these dug circles are obliged to be covered with flints, to prevent the rabbits from scraping them. The soil of the kitchen-garden is a very strong clay; and Mr. Brown can only get crops of large onions by sowing them in the autumn and transplanting them in the spring.

St. Leonard's Hill, Mrs. Harcourt. — This place is chiefly remarkable for the extensive views which it commands of the surrounding country, and especially of Windsor Castle. The woods are dense, and composed chiefly of oak and beech; but along the roadside, between this place and Virginia Water, extensive plantations have lately been formed of a mixture of oak, birch, Scotch pine, and larch fir, which we can by no means approve of. In point of ornament, such a mixture is out of the question, since it produces the most disagreeable kind of artificial monotony, that of a perpetual recurrence of discordant forms. In point of utility it is bad, because the oaks are overtopped by pines and larches, which are planted as nurses; but which are totally unnecessary as such, in a soil and climate like the present. Supposing oaks alone had been planted, and thinned out as they advanced in their growth, the general appearance of the plantation would at all times have been agreeable, because it would have presented the same kind of forms variously disposed; and all the trees would have grown vigorously, because no one tree would have robbed another, whether of nourishment, air, or light, these properties being shared equally among them. The hedges to these plantations were generally clipped: a superfluous expense, since they would have been just as effective as fences if left without cutting or clipping; and, every six or seven years, they would have produced a quantity of faggot-wood. The nice point to hit, in rural management, is, to incur no expense whatever that will not produce an adequate return. Between corn fields of small size, clipped hedges will pay, by their greater admission of light and air to the fields, both while they are in preparation for the crop, and while the crop is growing; and they are also, from their diminished and close compact surface, less liable to harbour birds and insects: but mere plantation fences require none of these considerations to be taken into view as guides for their management. All that is wanting in the case of plantations is protection; and if the plants are kept clear of weeds, and left to take their natural forms, a sufficiently formidable fence will be produced; and, at the same time, one of that description of natural or picturesque beauty, which will be more in accordance with a plantation of trees than a clipped formal boundary of green.

Virginia Water. — We saw the whole of this much talked of scene for the first time; and, like most of the other garden scenes of George the Fourth, it entirely disappointed us. We have before (Vol. III. p. 124.) noticed such parts as were occasionally shown to the public; but we now walked down the grassy margin of one side of the lake, and partly up the other, so as to examine every thing. To those who have never seen lakes in a country of hills and rocks, Virginia Water may be something: to us, it was tame and spiritless. Still, as far as nature is concerned, it would be unreasonable to expect any other style of beauty in the given description of country; but, when we hear it so highly spoken of as it has been in the newspapers as a garden scene, we expect to find that art has been called in to heighten what nature had indicated. For example, here is a winding lake, upwards of a mile in length, with various bays, recesses, prominences, sinuosities, and creeks, with every where a tame smooth grassy margin; the grounds on each side gently rising, and covered more or less with woods, natural or artificial. Now, what would be the additions which art would make to such a scene, in order to enhance its interest? First, the artist would arrange the turf and the wood on the margin of the water, so as to produce variety; and to admit of roads or walks, either of turf or gravel, so as to display the whole to the greatest advantage to a spectator walking or riding round the lake. Next, he would add such islands as might be necessary to throw the lake into agreeable shapes, and to vary its outline. Then he would relieve the margin of the water from the tame and spiritless effect produced by green grass joining into blue water. Afterwards, he would introduce different sorts of trees and shrubs, instead of the common sorts already existing, unless these were entirely indigenous, and it were intended to keep up a character of indigenous beauty: and, lastly, he would add architectural ornaments, such as a fishing-house, boat-house, covered seats, rocks, sculptures, or other objects. Instead of this, a tame drive has been formed round the lake, so conducted as to produce as little variety as can well be conceived. Nothing but a common-place mixture of trees has been planted; no islands have been added; and no relief, by the introduction of stones or gravel, or even old roots or trunks of trees, has been afforded to the smooth grassy margin of the water. As to architectural ornaments, a gorgeous Chinese fishing-house has been built; having a highly enriched roof with gilt ornaments, set down amidst the common woods of the country, and with nothing exotic around it. In another place, a quantity of the Elgin marbles, consisting chiefly of shafts of columns, with fragments of capitals and architraves, and some Flemish and other statues, have been set down equally without appropriate scenery; with the exception, however, of an arch, serving as a viaduct for the public road. At the dam built to raise the lake, a very good cascade has been produced; and in one or two other places there are some stones arranged in imitation of rockwork. With the cascade and rockwork we have no fault to find; and little with the Grecian fragments, which are put together with considerable taste: but all the rest we consider bad. We must not forget to mention a very handsome stone bridge, of five or six arches, which we think altogether inappropriate to lakes, and more especially to their broad parts. Bridges are best adapted to rivers, or to the narrow parts of lakes; where one, or at most two, arches will suffice for joining the opposite banks. We have the same objection to the long bridge in Kensington Gardens as to this one at Virginia Water, as we have shown at length in our first volume.

The Cottage of George the Fourth is taken down, with the exception of one room; and this room, and the adjoining grounds, are in a state of neglect.

The Flower-Garden at Windsor Castle has received the addition of a number of marble vases, and statues, some of them cast in metal, and some of marble. Some of these are from the antique, and some in the style of Louis XIV. The planting of the garden is liable to all the objections which we before mentioned (Vol. V. p. 605.); and the beds at this time are almost without flowers: very different, indeed, from the dazzling display at Dropmore. In some of the vases there were a few shabby half-starved fuchsias and other green-house plants, which would be considered a disgrace in a cottager's window; and the few flowers introduced in the beds were chiefly yellow lupines, marigolds, and other of the commonest annuals. In the centre there is a fountain, issuing from the orifices of a piece of metal resembling the rose of a watering-pot. The horizontal jets, which rise only an inch or two above the water, and extend almost in contact with its surface, have an exceedingly good effect, by giving great agitation to the water; but there is much want of a perpendicular central jet. The view from the noble terrace round this garden is, for richness and grandeur, as far as we know, unrivalled; and the exterior architecture of the castle, now nearly everywhere renovated, appears to us in unexceptionable taste. The gates to the long walk or avenue, with their low stone-roofed lodges, and massive angular stone piers connecting the iron palisading, we particularly admire. We saw the state-rooms, which are finished in a simple Gothic style (with the exception of the ball-room, which is in that of Louis XIV.); but they are not yet furnished.

Inn at Salthill. — *Aug.* 5. This house, which has attained great celebrity for furnishing all the comforts of private life to the higher classes, has had the character also of a garden inn, to our knowledge, for the last thirty years. The veranda, when we first saw it, was hung with festoons, from one end to the other, of Cobœ̀*a* scándens; and it is now varied by many of the finest modern creepers. At the foot of the supports, the finer sorts of fuchsias, pelargoniums, calceolarias, and other green-house exotics, are flourishing with as great luxuriance, and as completely untouched by passengers, as if they were bordered by a lawn in front of a gentleman's seat. We can only compare this veranda with that at Mrs. Starkey's cottage at Bowness (Vol. VII. p. 525.), similarly circumstanced: a proof, among many that might be adduced, that the public will never injure things meant to be enjoyed by them. Across the road is a garden, of about a quarter of an acre, laid out as pleasure-ground, with numerous flower-beds on turf, a straight broad gravel walk opposite the centre of the veranda, numerous fine trees, a mount, a seat under a tree, a summer-house, a bower, swings, and a green-house well stocked with showy plants; the whole in the very highest order and keeping.

Salthill Nursery, Mr. Stewart. — This nursery, which is of considerable extent, has been established upwards of twenty-five years; and we take blame to ourselves for not having before given some notice of it in this Magazine. It contains, near the house (which is on the left-hand side of the road when going from London), several green-houses, with a good collection of the more showy and recently introduced house plants; a good assortment of choice herbaceous plants, including the newest annuals; with a number of rare trees and shrubs: and, on the opposite side of the road, an ample stock of forest and fruit trees. Among these is an assortment of apples, placed in a line, including all those figured or named in Ronald's *Pyrus Malus Brentfordiensis;* and some others, not described anywhere. In the green-houses we noticed, among other plants, the *Cúscuta* sinénsis in great vigour; a choice assortment of fuchsias, many of which were raised from seed by Mr. Stewart, and which promise some new varieties; and a pelargonium-house, fully stocked with the best varieties. In one of Mr. Stewart's houses a Cobœ̀*a* lived nine years, producing vigorous growth, and abundance of flowers every year. Among the green-house plants in the open air was a large Lambért*ia* formòsa, splendidly covered with its beautiful flowers; and also a new variety of Passiflòra cærùlea. On each side of the front entrance to the nursery is a fine weeping ash, planted by Mr. and Mrs. Stewart, to commemorate the death of George III.; and, at the side entrance, is an evergreen oak, already a fine tree, placed there to commemorate the accession to the throne of George IV. We intend in future to visit this garden periodically; as well as that of Mr. Brown, at Slough; and also that of Mr. Baillie, which we did not now see.

Burnham. — In passing the second time through this village, we noticed a beautiful little well-kept flower-garden, with a central circular bed of fuchsias magnificently in flower; radiating from which were beds of pelargoniums and the finer annuals. This garden belonged to a village seedsman of the name of Austin. In the main street are two very choice flower-gardens, and a fine cedar tree opposite the house of a brewer; and, at the corner of a cottage, a remarkably large Búddle*a* globòsa. Throughout the village there are a number of fine plants and shrubs.

Missing our way, we stumbled on the kitchen-garden of Dropmore, kept by Mr. Duncan, in which were some fine fig trees, peach trees, and other fruits.

Taplow Lodge, Mrs. Tunno. — This is a pleasing place, of considerable extent. A striking feature, in approaching to the entrance front, is a detached conservatory with glass on all sides, and an architectural elevation, by Mr. Robert Stewart of Great Russell Street. The head gardener here, Mr. Holland, who is one of our correspondents, showed us remarkably fine crops of melons and Ribston pippins, the latter apple having this season produced large crops everywhere. A small conical-shaped tree of the Hawthornden apple was so laden with fruit from the base to the summit, that it presented a perfect cone of apples, the stem of the tree being totally concealed, and even great part of the leaves. Mr. Holland grows succory here in the open garden, during the summer season, and, in winter, he plants the roots in boxes, and places them under a stage in a house for forcing flowers, thus producing tender, crisp, and finely flavoured salad throughout the winter. The Cùcumis flexuòsus, or snake gourd, is here grown to great perfection as a curiosity; one plant being raised from seed every year. Of four fruit now on this plant, one measured 7 ft. 1 in.; another, 6 ft. 5 in.; and a third, 5 ft. 5 in. The fourth was impregnated, and swelling for producing seeds for the following season. It may be noticed here, for the sake of those who are not aware of the fact, that when gardeners wish cucumbers or gourds of any sort to grow long, and not thick, they prevent them from being fecundated by extracting the style and stigma immediately before the flower opens. The fruit grows slower when thus treated, but becomes much longer. When gardeners wish cucumbers to swell rapidly, so as to be cut early; not only are the stamens allowed to come to perfection; but the male flower is brought into contact with the female flower artificially. A Cunninghàm*ia* has here lived three years in the open ground without the slightest protection; and a bed of Fúchs*ia* grácilis, five years. Some fine tree pelargoniums, on the lawn, we were informed, were of the variety called Rickett's seedling: the flowers were of a brilliant scarlet, and the plants of uncommon vigour, with from 80 to 100 flowers on one truss or umbel. The yellow rose likes this dry gravelly soil, and flowers in it freely, producing perfect flowers. What is very remarkable here is, that fine crops of melons are grown in pits entirely without the aid of bottom heat. Rock melons, grown in this manner, frequently weigh 8 lbs. Grange's broccoli is here cultivated; and produces heads all the year round. There is an elegant aviary for canaries, on a board against which are some verses by one of the Misses Tunno, addressing the birds on the subject of their want of liberty, which do equal credit to the head and heart of the authoress.

Taplow Court, Earl of Orkney. — This place is nobly situated; the house, with the pleasure-grounds being placed on the brow of a lofty bank of the Thames, and commanding a noble reach of that river, with an extensive prospect of the fertile and well-wooded country beyond. The ruins of an old church adjoining the house, and a yew tree of very great age on the summit of a mount, form fine objects. The exterior architecture of the house and offices has been begun to be improved in the old English manner. A number of old walls have been pulled down, and the scenery on the lawn thrown open. The effect is excellent. In a conservatory are some fine plants, bought at the sale at White Knights four years ago. Among others, there is a Magnòl*ia* fuscàta 10 ft. high, and nearly 30 ft. in circumference. An *A*càcia lophántha, when we saw it, was ripening seeds. There is a terrace walk here, on the summit of the bank, about 300 ft. above the level of the river, nearly two miles in length; which, taken altogether, might be made one of the finest things of the kind in England, and probably in the world. Between this and the natural wood which skirts the base of the bank there is an admirable situation for an arboretum: but Lord Orkney is more fond of engineering than of gardening; in fact, he may be said to be devoted to the former, having a workshop close to the house, in which several engineers are constantly employed. The turning lathe in this shop is moved by a steam-engine of exquisite workmanship.

Taplow House, Pascoe Grenfell, Esq. — The house is situated half-way down the same high bank on which is placed Taplow Court, Park Place, Cliefden, Hedsor, and a number of other fine places, commencing at Richmond, and extending, on the same side of the river, to near Reading, where the banks become level on both sides. The house is here, very properly, entered from behind; and the view from the principal rooms commands the Thames and Windsor Castle. The grounds are not very extensive; but the lawn slopes most beautifully, and it is judiciously varied by choice trees and shrubs, and beds of flowers, the latter of the rarest and most beautiful kinds, assiduously and successfully cultivated, and kept in the most exquisite order by the gardener, Mr. Springall, who has been in that capacity here for thirty years, and has planted nearly every tree, and laid out every bed. The first view of the lawn front of the house, bosomed as it is in verandas covered with creepers and in banks of flowers, as seen from a dark walk near the lodge, through which strangers are introduced, operates like enchantment. We never were more delighted with anything in a small place. The first wing of the house is only one story high, and contains a suite of rooms, including a library, shaded by a skeleton veranda. By this term we mean a veranda that, instead of a close roof, has merely the wall plate, and a slight rafter from the top of each prop. These members are entirely covered with vegetation in great luxuriance, and chiefly by the Virginian creeper. The railing of a balcony in front of the dining-room is similarly covered, as is the veranda over it. The central part of the basement of the house may be described as embosomed in rockwork and flowers in pots and vases. On one end of the house is a beurré d'Aremberg pear tree, 30 ft. high, covered with fruit. Turning round before the steps which descend from the drawing-room to the lawn, the latter is varied by beds of flowers which lose themselves among trees, shrubs, and glades in every direction, but so far below the eye, that, when looking at them, the distant scenery is not taken into the landscape. Raising the eye, we catch the Thames and Windsor Castle between the tops of the trees. The walk proceeds in a winding direction till it reaches a straight walk shaded by elms, the simplicity of which contrasts finely with the variety and intricacy of the other walks. Among the trees not planted by Mr. Springall, may be noticed a magnificent plane, 100 ft. high, with branches extending far on every side, and sweeping the ground; a tulip tree, 70 ft. high, and some noble elms. We were particularly struck with the vigorous growth of every description of plant introduced in the flower-beds; and we were informed by Mr. Springall of the cause; viz., that he takes out the soil every year to the depth of 2 ft. or 3 ft., and renews it entirely. He does not introduce a single bed, or even a single plant, however common may be the kind, without this precaution. On observing the flower-stems and remaining flowers of *Gladìolus byzantìnus* very strong, Mr. Springall stated that he never puts dung in his compost for these plants, but only uses yellow loam with a little sand. The different dwarf blue-flowered lobelias, such as *L. unidentàta, bellidifòlia, erinöìdes*, &c., grow here so much larger than we have seen them any where else, that they appeared like distinct varieties. The same may be said of the different verbenas and of most of the other usual lawn plants. The masses of blossom shown by single pelargoniums were remarkably fine; some of them were 3 ft. in diameter at the base, and 6 ft. high, forming a complete cone of scarlet flowers. These plants continue in bloom all the summer, a particular variety being used for that purpose, which is obtained in the following ingenious manner: — It is well known to gardeners that variegated-leaved pelargoniums flower more freely, and for a greater length of time, than any of the varieties which are not variegated; but then these variegated plants never grow large, or produce strong wood and vigorous leaves. To obtain strong wood and luxuriant foliage, as well as a continuance of bloom all the season, Mr. Springall chose a cutting from a variegated plant which had run, or returned to its original green; and from this cutting he propagated the plants which he trains as cones. We may observe, that here, as at Dropmore, the walks were brimful of gravel, and the grass edgings clipped, and not pared, which, as we have often before said, is one of the greatest beauties in the details of walks, though we cannot get it attended to half so much as we could wish. Mr. Springall is enthusiastically devoted to his profession, and is in his garden, as he informed us, from four o'clock in the morning till it is dark at night. His master never interferes with his management, and this will always be found to be the case, when the garden is so well conducted as it is here. Mr. Springall lives in a pretty thatched cottage by the road side, with an octagon front, and a veranda ornamented by creepers; he has also a very neat flower-garden in front. Opposite the entrance to Taplow House is another handsome cottage, with a beautiful flower-garden in front, evidently under the superintending care of Mr. Springall; so that the general impression, both on entering and leaving the place, is that of comfort, neatness, and fine flowers.

Wakerill's Nursery, Maidenhead. — This nursery has only been lately established; and Mr. Wakerill is taking the most effectual means of insuring success, viz., that of procuring all the newest hardy plants from the Epsom and other nurseries about London, and propagating them with rapidity. He has a Wistàr*ia* Consequà*na* in the corner of a frame containing hot dung, and by training the shoots, as they grow, concentrically round the frame, placing every alternate bud over a pot of earth, he raises half as many plants as he has buds in one summer. We never saw anything of the kind more cleverly done. Last year Mr. Wakerill sold 50 plants to the trade, from this two-light hot-bed, independently of what he sold to his private customers, and kept. He is propagating *Ribes* sanguíneum with equal facility, from cuttings of the young wood. This nursery was in very high order, and altogether we were exceedingly gratified with it, and with the conversation of Mr. Wakerill.

There are two Inns at Maidenhead having gardens, one by the water side, which is chiefly remarkable as a landscape garden, and the other at the Sun Inn, at the opposite end of the town, noticed Vol. III. p. 481., which is an ornamental or flower garden, in the Dropmore manner. It is in as high order as when we last examined it, and a distinguishing feature, on entering it, is an acuminated semiglobe, like the Antheum at Brighton, of pelargoniums, the base planted in soil raised to a certain height of the requisite curve, and the remainder in pots on a stage, which completes the figure.

Park Place, —— Maitland, Esq. — We walked over the whole of the ruins, as they may be called, of this once magnificent place, in company with the excellent and very intelligent gardener, Mr. White; and often did we think of what it must have been in the time of the Prince de Ligne, when he went over it with its then proprietor, General Conway. At that time between forty and fifty men were employed in keeping it in order, and now there are only three, with one woman, kept for the same purpose. To expect any thing like high keeping, therefore, is quite out of the question, though it is really wonderful how much Mr. White has been able to effect with means so circumscribed. We cannot help deeply regretting that such a place is not kept up as it ought to be.

It is grievous to see General Conway's buildings all going to decay, with the single exception of the druidical temple presented to him by the inhabitants of the island of Jersey, where he was some time governor; and the rustic bridge, over which the public road is carried, and under which there is a vista to the Thames. Near the house are some magnificent old trees, particularly a cedar planted by George III., and supposed to be the most stately cedar tree in England, which we doubt not may be the case: if any surpass it, it must be some of those at Whitton. The soil in most parts of these grounds is a strong clay, very hard and dry in summer; and yet on this numerous rows of spruce fir trees have recently been planted, a tree which prefers soft soil in a low moist situation. In consequence of this, these trees, though not more than 10 ft. high, are covered with cones. Perhaps there is no tree for which the soil and situation are so ill adapted. The Thames, as seen from the Druid's temple, contains an island, which, with the banks and the general outline of both the island and the river, might afford an excellent lesson to landscape-gardeners in imitating tame rivers in level parks. Park Place has long been celebrated for its lavender plantations, which occupy between 40 and 50 acres. The plants are raised from cuttings, which are slipped off and prepared by women in the autumn, and bedded in, in rows, in any spare piece of garden ground, where they remain for two years. The ground into which they are to be transplanted being prepared by shallow trenching, or double ploughing, the plants are placed in rows 4 ft. apart, and at 2 ft. distance in the rows. For three or four years a row of turnips or potatoes is grown between the rows of lavender; after which period, or about the time that the lavender plants in the row touch each other, half of them are removed, leaving the field covered with plants 4 ft. apart every way. All the culture which is required afterwards, is keeping the soil free from weeds. In a few years the plants touch each other; and in this state they will remain from 15 to 20 years, according to the nature of the soil: they are then taken up, and the ground cropped for two or three years with turnips and other field crops; after which the lavender plantation is renewed. The flowers are obliged to be either sold to a regular licensed distiller, or distilled on the premises, on account of the excise laws. The oil from the plantation here is said to be of the best quality; doubtless, from the calcareous nature of the soil.

The present proprietor of Park Place has built a very handsome boat-house on the river side, and has finished and furnished it interiorly with Elizabethan and Dutch fittings up and furniture: the whole is in consistent taste. Mrs. Maitland has also built a school, in which a number of children are gratuitously educated; a practice highly to be commended, so long as a national system of education is withheld. Mr. Maitland has also built two new lodges, and made a new approach. The lodges, as well as the boat-house, are by a local carpenter; and though the former want the boldness and freedom which indicate a master artist, they do credit to his taste. Their style is original, bordering on the Elizabethan, and they are, at the same time, perfectly consistent.

The temporary fence along one of the approaches is formed of posts and one top rail, both being young larch fir trees with the bark and about 2 ft. of the branches left on; thus presenting a most formidable *cheval-de-frise*, which must be of considerable durability. On the public road side, a bank, between 20 ft. and 30 ft. high, which had been sloped to an angle of 45°, is now formed into a more acute angle, it being found that heavy rains wash down the new earth much less when a bank is very steep. The cause evidently is, that less rain falls upon it in the one case than in the other. Reduce the face of the bank to a perpendicular, if practicable, and no rain at all would fall on it.

Lavender Cottage, —— Graham, Esq., is finely situated on a knoll, backed by the woods of Park Place, and having the Thames at a short distance from the boundary of its lawn, the public road on the right, and the lavender plantation stretching away to the left along the base of the chalk hills. In General Conway's time, this was the house of his steward; but it is now let as a gentleman's residence.

The Reading Nursery, Mr. Myles Priest. — *August* 6. This nursery was established thirty years ago, by the late Mr. Connings, whose executors sold the stock and good-will to Mr. Priest. This gentleman was brought up to the profession of the law at Norwich, but being enthusiastically fond of gardening, he has relinquished the legal profession for the nursery business; and, having begun with a good capital and the greatest ardour, we have no doubt that he will, in a short time, render this one of the first of provincial nurseries. The extent, at present, appears to be nine or ten acres, most beautifully situated, on a bank gently sloping to the south, about a mile from the seed shop, which is in the market-place of Reading. For some years past, this nursery had been neglected; but Mr. Priest is procuring all the new and beautiful hardy herbaceous plants, and trees and shrubs, and increasing them through the assistance of two excellent propagators from the nurseries of Colvill and of Lee. There are two or three small green-houses and pits, and more will be erected. Down the centre of the ground, there is a rustic arcade over a walk, planted with creepers, two of a sort, one opposite the other, which has a most beautiful effect as a whole; and when walked through, shows in detail the character of each creeper, so as to enable intending purchasers to make a choice from personal inspection. Borders are to be formed along the principal walks, to display the finest kinds of trees, shrubs, and herbaceous plants, including standard roses; all for the same purpose, viz., that of enabling the public to choose for themselves. Our readers will recollect the notice of Mr. Priest's Schizánthus (p. 465.): we had an opportunity of seeing some of the flowers on the decaying plant, which has produced several seeds. There can be no doubt of its being a distinct variety. The drawing sent us was a very accurate representation. Mr. Priest has promised to send us a communication on a floricultural impostor who has visited him, and another on the subject of the fly in turnips.

The Market of Reading is well supplied with the commoner vegetables and fruits, and particularly with apples and cherries. The latter fruit this year is very abundant, and of excellent quality. The cherry market is held on Wednesdays and Saturdays, and on the last market-day, the 7th inst., the price was 1*s.* 6*d.* per score pounds. The last cherry market for the season will be held on Saturday. It is a pity that the cherry-growers have not learned the art of making kirschwasser. (See Vol. IV. p. 179., and Vol. VIII. p. 182.) Flowers, both cut and in pots, are brought to market on Saturdays, both from market-gardens and private gardens. Great quantities of green-house plants in pots have been exposed for sale in the market-place, from the gardens of private gentlemen, and also hawked round the town in carts. Mr. Priest mentioned to us one gentleman who sold, in one summer, as many as 950 pots of pelargoniums in this way. Onion seed is exposed in the market for sale at a certain season, and this year promises an abundant crop.

The Garden of the Reading Gaol well deserves notice in a work, the great object of which is to promote a taste for this art. It is, as may be supposed, small; but the governor has a taste not only for gardening, but for natural history. He has, on his lawn or grass plot, a beautiful piece of rockwork, composed of flints and fragments of mural antiquities. He has, also, a variety of plants of the choicest kinds, such as Wistàr*ia*, double furze, *Rìbes* several species, *Petùnia* phœnícea, and numerous pelargoniums, the whole mixed with fruit trees. There are several little green-houses, pits, and frames, well stocked with rarities. The whole was in the most exquisite order and keeping. Every advantage was taken of the high brick walls of the gaol for training vines and fruit trees. The governor had also a collection of fancy rabbits, a beautiful cockatoo, &c. The prisoners were watering the plants; and we can only account for the neatness of the whole from the abundance of hands at the command of the master. On looking through the prison we felt, as we did at Aylesbury, in 1831, the deepest regret at seeing so many persons imprisoned for mere trifles, without any reference to their reformation; which imprisonment, as the gaoler himself remarked, could only have the effect of making them worse. Great are the reforms that are wanting in this department of national police; and much remains to be imitated from the French and American practices. How this is to be effected in a country divided into what may be called castes, and where a sympathy for the lower classes in any that are above them is sure to involve obloquy, is what we cannot foresee. Providence, however, wisely orders all things for the best, and everything is advancing, however slowly. After all that has been done in America, however, in the way of prison discipline, it is now found that prevention, by early education, is the only effectual check to crime, next to that of abundant employment. (See *Roebuck's Speech on National Education*, p. 7.)

White Knights, —— *Cholmeley*, *Esq.* — This place has lately been recovered by the family of the original possessors, after an occupation, for seventy years, on an imperfect title, by the Duke of Marlborough and Sir Charles Cockerill. Mr. Jones, who planted the place, and who remained here from the time we first saw it, in 1804, to 1830, is gone to be gardener to the duke at Blenheim; and the present gardener is Mr. Ward, from Downton Castle. We first went over the house-garden; the alterations made in which are, the removal of some of the hot-houses, particularly the exotic aquariums; the turfing of a number of the groups of flowers, leaving only the shrubs and trees that were in them; and the removal of all the plants in pots. All these, the hot-houses, and all the removable articles in the grounds, were sold by auction, for the benefit of the mortgagee, Sir Charles Cockerill, who had advanced 85,000*l.* to the duke upon the estate. The walks remain as they were, as do a few of the flower-beds which are left unturfed, and the whole of the beds in the botanic garden. The interest excited by the garden, notwithstanding all these changes, is still almost as great as ever; because the rare trees and shrubs, which were at all times the only objects of permanent value, still remain. We have not time to particularise these in detail; the list, even in this garden, would be too long; but, were we to include, at the same time, the garden in "the wood," and to note the number and dimensions of each fine plant, it would fill a magazine. It must be recollected, that almost all of these plants were planted during the latter ten years of the last century and the first ten years of the present, when the prices of many articles now to be purchased for 2*s.* or 3*s.* were 5, 10, 15, and 20 guineas each. The greater number of these costly plants were furnished from the Hammersmith nursery; and, in 1804, the late Mr. Lee informed us, that the Marquess of Blandford's bill with him exceeded 15,000*l.*! Before we proceed to "the wood," we shall notice a few of the trees in the house-garden. There is a group of variegated trees, in which one of the varieties of variegated oak is remarkably fine, presenting, at a distance, the appearance of a tree of shining silver. It deserves to be extensively propagated as an ornamental plant; and we strongly recommend it to the attention both of Mr. Priest and Mr. Wakerill, not forgetting Mr. Donald. *C*lèthra paniculàta, now coming into flower, has attained, in some places, the height of 15 ft. Cunninghàm*ia*, 10 ft. high, has stood without the slightest protection, for fifteen years. Six trees of *Ailántus* glandulòsa flower every year, producing only male blossoms. There are fine specimens of *Laúrus Sássafras* and *L. Benzòin*, and of N*ý*ss*a* aquática. A standard Photínia serrulàta is 15 ft. high, the branches extending over a circle of 15 ft. in diameter. When we first saw this plant, in 1804, and also, we believe, in 1818, it was covered with a glass case; but it has now received no protection for many years. *C*ratæ`gus *s*alicifòlia is large, and is assuming a very remarkable cedar-like character. *A´*rbutus *A*ndráchne is 10 ft. or 12 ft. high, and is believed to be the largest in England. The separate specimens of azaleas, on the lawn, are remarkably fine; and many of them are above 6 ft. high, forming hills of blossom in May and June. The banks of rhododendrons are higher than the boundary wall. The compartments of the garden are, in some places, formed into panels, sunk about 18 in. deeper than the surrounding walks; this has an exceedingly good effect, by giving a terraced and elevated character to the walks, and to the spectator a more commanding view of the beds in the panel. In all formal flower-gardens, bordered by right lines, where turf edgings, or edgings of stone, are employed, great effect is produced by attending to this style of disposition. Flower-beds, in such a garden, should be always below the level of the walks, or else considerably above them on a raised panel. To have them on a level with the walks is too simple for a style avowedly artificial. The exterior end of one of the greenhouses is covered with masses of the Calámpelis scàbra and Maurándy*a* Barclay*àna*, splendidly in flower; the orange of the one forming a brilliant contrast to the purple of the other. In the conservatory are two magnolias, each 10 ft. high, grácilis and purpùrea, by some alleged to be the same; but they are here decidedly distinct, even in wood and foliage, while the petals of the flowers of grácilis turn back, and those of purpùrea are cup-shaped, or rather turn inwards. In the same conservatory there is also a Magnòl*ia* conspícua; these three species having been considered green-house plants at the time this house was planted. The M. conspícua has borne seeds, from which Mr. Ward has raised fifteen plants, which, as far as we know, are the first that have been raised from seeds ripened in England. *A*càcia élegans is large, and very handsome. The wall covered with Magnòl*ia* grandiflòra is magnificent and unique. Mr. Ward has very judiciously layered a number of the shoots at the bottom, to prevent any risk of its becoming naked there; and we should recommend removing the projecting trellis at the top, the object of which is to protect the lower part of the wall (but which experience proves to be altogether unnecessary), heightening the wall instead of it, and training the trees eleven or twelve feet higher. To push the practice of training magnolias against a wall as far as it would go, the foundation of the wall ought either to be made zigzag or wavy, by which means a very thin wall may be carried to any height with perfect security; or a round tower might be built, 10 ft. or 12 ft. in diameter, the trees planted outside, and the tower heightened as they grew.

Proceeding to "the wood," we cannot help noticing the very handsome narrow avenue of elms which forms part of the approach from Reading, and which has more the proportions of the centre aile of a cathedral than many which we have seen. Avenues are of two kinds: those which are open, as at Hampton Court and Windsor; and those which are covered, as at White Knights, Strathfieldsaye, Christ Church College in Oxford, and Littlecot Park. Comparing the four latter, we should say that the avenues at White Knights and Littlecot Park are decidedly the most elegant; that at Strathfieldsaye is grand; and that at Oxford, though now in a state of decay, would, from its commanding height, be sublime, if it were of greater length. " The wood " at White Knights is entered through a gate flanked by large rough blocks of stone, brought from Marlborough Downs; but set up, as a child might be supposed to have done, before the wicket of its baby garden, instead of being arranged so as to produce some kind of artificial or architectural character. Two walks proceed one to the right, and the other to the left; the stranger being introduced by the one, and returning by the other. We shall not now enumerate the objects as they are seen in succession, as we intend to do that in a review (which we have had prepared for some years) of Hofland's *White Knights.* Tulip trees and magnolias of large size first meet the eye, mixed with the oaks, hazels, and beeches of the aboriginal wood. The acacias in this wood have been attacked two years in succession by a black aphis which destroyed almost the whole of the leaves; and the consequence is, that several are totally dead; the remainder being nearly bare, and so sickly that there can be little doubt of their dying next year. Periodical visitations of this kind by insects, like periodical visitations of diseases among animals, are not yet satisfactorily accounted for; and hence it is out of the question to attempt to prevent them. The catalpa evidently does not thrive on a wet subsoil; for here most of those along the catalpa walk are dead, and the rest are dying. We have observed the same thing with the catalpa in several other places. The specimens of *P*ìnus Pallas*iàna* are very fine, and vary from 40 ft. to 50 ft. in height. It is said that only about sixty or seventy plants were imported, and that the marquess purchased the whole of them, and planted them in these woods. There are a great many fine specimens of *C*ratæ`gus tanacetifòlia both in this wood and in the open park; they come into flower when the blossom of the common hawthorn begins to fade; and in autumn the trees are covered with large and beautiful yellow haws. The *C.* odoratíssima greatly resembles the *C.* tanacetifòlia in leaf and mode of growth, and it flowers at exactly the same time; but its berries, which are as large as those of *C.* tanacetifòlia, are of a fine coral colour. *C.* Arònia bears large yellow haws, and is one of the handsomest trees of the genus. All these species of *C*ratæ`gus, as well as many others, ought to be introduced in every park and shrubbery. There are some good specimens of Magnòl*ia* pyramidàta, a tree seldom found in the nurseries, and rare, as we are informed by Mr. Gordon, even in America. *C*órnus flórida was large and very handsome, as were both species of the stuartias, which were finely covered with flowers. A handsome tree of *Pỳrus* Pollvèr*ia*, 30 ft. high, was in fruit. There were numerous large virgilias, and magnolias of almost every species and variety. There was also a fine specimen of *Qu*ércus fastigiàta, a tree said to be much more common in Germany than in England. The fountain (see fig. 68. p. 215.) is in good repair; but, though handsome in itself, it certainly appears misplaced in a natural valley. The long arcades are in a state of decay, but the covered seats and rustic summer-houses are in tolerable preservation, notwithstanding the tearing down of the shelves and other movable parts of the latter, which were sold by auction. Even the houses themselves were lotted, and put in the catalogue for sale; but they were claimed on the part of Mr. Cholmeley, as belonging to the ground. The river in the park is now so completely covered with *I*'ris Pseud-*A*'corus, *S*pargànium, and *A*lísma *P*lantàgo, that the water is invisible; and, if left to itself, there can be little doubt that in a very few years it will become marshy ground. White Knights has been celebrated in the gardening world from the middle of the last century, when it was laid out as a *ferme ornée*, and attracted the attention of Whately, Shenstone, Pope, and all the amateurs of landscape-gardening of the time; but its beauties as a *ferme ornée* were as nothing, when compared with those created by the Marquess of Blandford, "regardless," as the auctioneers say, "of expense." It is said to be the intention of Mr. Cholmeley to sell this estate; and we most sincerely hope that, if he does so, it may fall into the hands of some one who will keep it up properly. We do not care for having the hot-houses restored, nor are we exceedingly anxious that herbaceous plants or flowers of any kind should be continued in the house-garden, for that is already sufficiently crowded with trees and shrubs: what we chiefly desire is, to see all the rare trees and shrubs preserved, and new species added to them as they are introduced. We would remove all the common articles and duplicates from the house-garden, and all those which are too much crowded in "the wood," and plant them in the park, and we would restore "the wood" to its former state, and make a herbaceous ground there, with groups on the turf, according to the natural system. Were the town of Reading sufficiently rich, it would do them honour to purchase this park, and arrange it as a public garden, in which they might be joined by the gentry of the surrounding country, the privilege of visiting it being common to all. By having no hot-houses, frames, or pits, except such as were necessary to protect and prepare flowers for turning out into beds in spring, the expense of keeping it up would not be much greater than what would be produced by the rent of the house and pasture land, and the sums which would be received from visiting parties coming from a distance. If the purchase of the whole estate, which includes above 1300 acres, cost 90,000*l.*, a thousand acres might, perhaps, be sold off in small lots, so as to leave the 300 acres as profit: in that case, the rent would be easy.

In one of the Churchyards at Reading we observed very handsome and economical tombs. A space 10 ft. or 12 ft. deep is enclosed by a wall, so as to leave the interior of the size of a large coffin. This wall is carried up to the surface, where it is finished with a corniced coping one foot high of hewn stone. On this coping is placed a cover of one block of stone, with mouldings worked on it, so as to give it the appearance of the top of a sarcophagus. This cover is put on with mortar, so as to be air-tight, and is removed when interments are to take place. In this way, a family vault of almost indefinite capacity occupies very small space: but we do not recommend it; as the idea of piling one coffin on another is offensive, and every time the cover is removed there must be danger from pestilential effluvia. There is no mode of burial, in our eyes, equal to that of single graves in an open cemetery, field, or wood.

Aug. 7. In proceeding along the Newbury road to Englefield House, we observed, on the left, the circular reservoir of cast iron, which supplies great part of the town of Reading with water. It is about 50 ft. in diameter, and about 12 ft. high (we speak from a casual view), and is placed on a base of brickwork about 3 ft. high. If the latter had been higher and more architectural, and if the upper part of the cast-iron rim had been also architectural, and the surrounding fences removed, so as to leave this structure in an open area, it would have formed a noble public ornament.

Coley Park, the Seat of B. Monk, Esq., has a promising entrance; and, though the grounds are flat, the place looks well from the road.

Prospect Hill, —— Stephens, Esq., is finely situated on the side of a hill, backed and flanked by rising woods. All that it requires is that finishing to the lawn which can be only given by the exercise of ornamental gardening: that is, the judicious disposal of groups and baskets of flowers, and vases and other architectural ornaments. A terrace, as a basement to the house, would also be a great improvement. Some young plantations by the road side are judiciously thinned, so as to allow the trees to be clothed with branches from the ground upwards; a circumstance rarely to be met with in any other part of this country. A narrow belt becomes thus productive of great variety of form and outline, and is a more effective scene than if it were broader, and the trees standing closer together.

Calcot House, Mrs. Bevil, is a massive brick building, with a finely undulated park, varied with noble trees. The house is large; and though faulty as a piece of architecture, yet, as contrasted with the green of the trees and the turf, it has a grand effect.

A new Church has been erected at Theale, the body of which is satisfactory, but the tower, and all the turrets, and terminations to the buttresses, are too short; they want that boldness and freedom of style which in all arts is the characteristic of the master, — of the mind which has perfect confidence in what it is doing.

Englefield House, R. P. Benyon de Beauvoir, Esq., is most nobly situated on the side of a considerable hill, covered with fine old wood. From the road the house (which is a building extended in length, with a tower-like projection at each end) is seen rising through the wood. There is nothing done in the way of pleasure-ground around it, but there is a most excellent kitchen-garden, managed by one of the best cultivators in England, Mr. Greenshields, author of an excellent paper on the pine-apple, in the *Horticultural Transactions*, quoted in our *Encyc. of Gard.*, and also in this Magazine (Vol. I. p. 426.). Adjoining the kitchen-garden there is a flower-garden, with a conservatory, and a plant stove. The wall trees and other particulars respecting this place have been noticed by our correspondent, Mr. Saunders. (Vol. VI. p. 655.) The transplanted trees, which he there speaks of, are, however, plums against a wall, and not standard pears. The garden has been lately enlarged, and some new walls have been built: in one direction, where it is proposed to extend the garden still farther, Mr. Greenshields has put up a wavy 4-in. wall, 10 ft. high, which forms a very good fruit wall in the meantime, and can be removed at very little expense. This wall has no piers, and the coping is of semi-oval bricks (see *Ency. of Gard.*, § 1567. 2d edition). Mr. Greenshields grows the winter Auchan pear here to very great perfection, and has now some trees trained in the *en quenouille* manner, but more systematically, and, indeed, more in the balloon manner, which have good crops. He intends to have balloons rising one out of another, each smaller than that below, so that the tree, when finished, will appear like a tapering column of pears, stuck into one another with the broad ends uppermost. The object is to gain room for kitchen crops, and to produce something new and varied in appearance. Much of his success, in our opinion, will depend on his being able to dispense with the use of the knife, and to substitute disbudding. The great advantage of this operation is, that it adjusts the strength of the roots to the required top or branches; whereas, when shoots are left on till it becomes necessary to cut them off with a knife, they have already done mischief, by over-strengthening the root. There is no man whom we know, who understands this subject so well as Mr. Main; and we would very strongly recommend his little work on vegetable physiology to every young gardener. We shall be disappointed, if, when the doctrine of disbudding comes to be thoroughly understood, it does not effect a very considerable change in the mode of managing every description of fruit tree which requires to be trained in any particular form, or kept within any particular dimensions less than what are natural to it. The Kerry pippin is a favourite apple here, and the standards of it are laden with fruit quite down to the ground. All the kitchen crops are cultivated in drills; even to lettuces and radishes. We saw remarkably fine Italian celery, a variety which Mr. Greenshields considers so much superior, both in flavour and crispness, to all others, that he does not cultivate any of them. He has sent a quantity of the seed to Mr. M'Arthur, of the Connaught Square nursery, through whom we hope it will be distributed all over the country. The pine-apples here appear to be of a particular variety of queen, which is very prolific in suckers, every plant having four or five, and some more. One of the peculiarities of Mr. Greenshields's mode of growing pines is, that of planting them deep in the pot. We never saw pines looking better, or a finer show of fruit. In the flower-garden, conservatory, and stoves there was much to remark, but we were so "taken" with Mr. Greenshields, whom we found to be born in the parish adjoining that which was our own birthplace, that we did not pay sufficient attention to what was before us. We recollect, however, the impression made on us by the good tone of colour (that of Bath stone) of the hot-houses, from which a hint might be taken at Dropmore and other places; the good effects of enclosing the flues in stone cases, so as to regulate the admission of heated air; a remarkably fine Pergulària; a variety of capsicum, the true Indian, very desirable for pickling, and which Mr. Greenshields thinks ought to be extensively cultivated; numerous plants of ginger, here grown in large quantities for preserving; Cȳcas revolùta in remarkably large fine deep green foliage, which is chiefly produced by cutting over the old leaves in February, about a fortnight before the new ones begin to appear; a remarkably fine plant of Lagerstrœ̀m*ia* índica, with thirty trusses of flowers all expanded, one of them 1 ft. long and 6 in. in diameter; *Angelònia* salicifòlia, here a favourite; Brugmánsia arbòrea, finely in flower; *Tacsònia* pedunculàris, on an open wall, very vigorous, but not yet in flower; large white fig trees against a wall in the flower-garden, which were not pruned till midsummer, as an experiment, to see whether it would check their growth; several pieces of rockwork, and one ridge of raised ground with common heath as undergrowth, and rhododendrons as bushes; a number of the more rare pines; such as Cèdrus *Deodàra*, *P*ìnus Sabini*àna*, ponderòsa, *t*axifòlia, and Douglàs*ii*, &c.; the last, both here and at Dropmore, makes two shoots every season, grows as freely as the common spruce, or more so, and promises to be a valuable addition to our resinous timber trees. Gaillárd*ia* aristàta is here difficult to keep through the winter, as are some of the new calceolarias. The scarlet thistle (Erythrolæ`na conspícua) ripens its seeds by being sown in the autumn, either in the open air and sheltered, or under a cold frame. Myrtles against the walls have stood out many years, and have ripened their berries, from which young plants have been raised. Thunbérg*ia* alàta is sown in February, as an annual, for beds and borders. The georginas, instead of being tied to stakes, are pegged down, so as to cover the whole surface of the bed with a mass of flowers, a practice which we do not recollect to have seen elsewhere. *Datùra Mètel*, a very distinct species, which, with *D.* ceratocaúlon and Martýn*ia* proboscídea, forms a singular ornament to the flower-garden. The tall red stems of Phytolácca decándra are here, at White Knights, at Frogmore, and at the Botanic Garden at Twickenham, bold and imposing ornaments, and their beauty is still greater when in fruit than when in flower. Mr. Greenshields prefers fire heat (55°) to dung heat, for growing mushrooms; the former, he thinks, producing too much moisture.

In crossing the country to Strathfieldsaye, we observed a remarkably large yew tree in the churchyard at Sulhampstead; and a long broad ditch, completely covered with Sagittària sagittifòlia; on the margin of which was abundance of *Sým*phytum officinàle. We passed a number of other large yew trees, and found also that this tree, of a large size, was abundant in the park at Strathfieldsaye. At Mortimer Street, the vicarage house has a very beautiful flower-garden and shrubbery, with a piece of water, the beauty of which may be fully enjoyed by passengers on the road. The grounds consist of two banks of turf, which slope down to the pond, and the whole is considerably below the eye of a person walking along the road. It would be easy to shut it out by a hedge of the ordinary height, but we commend the taste and good feeling of the proprietor, in wishing his neighbours and the public to participate in his enjoyments. We know nothing of this vicar, not even his name; but we have little doubt that he is a good man. It seems to us that every man, in ornamenting his house, his garden, or his estate, however small it may be, ought to consider not only his own gratification, but the ornament and benefit of his country. He ought always to ask himself, what the passers by will think of what he is doing. We passed some plantations of firs planted in straight lines 6 ft. apart, and of oaks 12 ft. apart; the trees in both cases 20 ft. high. This mode of planting seems to be common in this part of the country, and indeed, it is the only mode by which plantations can be sytematically cultivated and managed with a view to profit. At Swallowfield we found similar plantations, but in a younger state, and with four rows of potatoes cultivated with the plough in every interval between the trees. In passing along this cross road, the turnings and intersections were numerous, and, as there were scarcely any houses, if we had not had a good map, we could hardly have found our way. A great deal has been said respecting building cottages along the main roads, instead of milestones; but would it not be of more use to build cottages at the intersections of all roads? We do not, however, desire this; for so great are the advantages of aggregation, that, as soon as the mass of society is properly educated, they will seldom be content to live otherwise than in or near to towns and villages.

Strathfieldsaye, His Grace the Duke of Wellington. — We entered this noble park by an avenue a mile in length of elms, of a broader-leaved kind than the common English elm, and forming a tree of less altitude. The surface over which this avenue passes is undulating, which detracts somewhat from its first impression; but, as it is found to increase in length as we advance along, the sentiment of grandeur is recalled, and by prolongation is even heightened. We expected the surface of the grounds to be flat, but were agreeably surprised to find a gentle hollow running through them in the direction of the length of the park, in the bottom of which hollow is the river Loddon, widened, and otherwise heightened in effect. The park is as well wooded as could be desired, with trees of all ages and sizes, but chiefly with old oaks and elms. The avenue of elms terminates at a short distance from the house, where the pleasure-ground commences on the left, and a plantation continues to the kitchen-garden and stable offices to the right. The approach road is still continued in a straight line between them, till it terminates in a circular road round a piece of turf about 100 ft. in diameter, to the left of which is the entrance front of the house; to the right, and also in front of the long avenue, are straight roads forming approaches in different directions. We met Mr. Cooper, the very polite and well-informed gardener, at the commencement of the pleasure-grounds, and walked round them and the kitchen-garden with him, leaving the place afterwards by the London approach, which branches from the avenue in a winding direction at about two thirds of its length from the house. The pleasure-ground is of very limited extent, and perfectly flat; but it contains some very fine specimens of cedars, larches, Weymouth pines, spruce firs, and other foreign trees, including, we may say, most of those which were to be found in the London nurseries about the middle of the last century. There was, in particular, the largest hemlock spruce, we believe, in England; we guessed it at between 40 ft. and 50 ft. in height; the trunk at the base at about 12 ft. in circumference, and the extent of the branches at between 15 and 16 yards. The trunk divides in two about the height of 2 ft. from the ground, otherwise there can be no doubt the tree would have grown higher. It stands on the centre of a semi-oblate spheroid (a flattened dome), and under the branches are a great number of seedlings. Whoever has grounds of his own, and wishes to have a memorial of Strathfieldsaye, ought to beg from Mr. Cooper one of these plants. There is an old sickly catalpa in flower, from the appearance of which, and from that of those in the wood at White Knights, it is evident that a wet-bottomed soil does not suit this tree. Of Nýss*a* aquática, there is a very fine specimen about 20 ft. high, and with a stem 6 in. in diameter. There are a very large liquidambar, several fine tulip trees, and decidedly the largest scarlet oak we ever saw: it was about 4 ft. in diameter, and above 100 ft. high. The trunk is straight, and covered with a clear smooth bark. Mr. Cooper informed us that he found, from some branches which he had had occasion to cut off this and other scarlet oaks, that the wood was remarkably hard and close-grained. Our readers are aware that the wood, when matured, approaches to the same colour as the leaves in autumn, viz. a deep scarlet, and that the same observation will apply to the wood of trees in general. There are good specimens of *Laúrus Sássafras* and *L. Benzòin.* Among the common oaks are some, 5½ yards in circumference at the surface of the ground, still growing vigorously. Standing at the lawn front of the house, the ground descends so gently to the Loddon as almost to appear a level surface; a little to the right is an artificial cascade, and to the left the river appears to be lost in meadow land, which on the opposite bank gradually rises, and is crowned with wood. The house itself is low, and altogether unworthy of the place, and there is scarcely a flower-bed on the lawn. There is an old orangery, and there are some orange trees in tubs, the sides of the latter neatly clothed with pine cones, and the surface of the mould covered with pebbles about the size of pigeons' eggs. The pine cones, besides giving a rustic appearance, exclude the heat; and the pebbles regulate the distribution of the water from the watering-pot. The kitchen-garden is of considerable extent, with several forcing houses and pits. Altogether, it is better than could be expected in a place which had been so long neglected; and it is made the very most of by Mr. Cooper. Mr. Cooper was educated as a gardener at Bulstrode, in the high and palmy days of gardening, under Mr. Haycroft, who studied the horticulture of the Dutch in Holland, and introduced at Bulstrode the forcing of fruit trees in Dutch pits. Mr. Cooper has done the same thing here, and he finds that peaches and apricots in pits, like those at Hylands, without heat, either from flues, dung, or any other means than are afforded by the sun and retained by a covering of glass, ripen their fruit a month sooner than the trees on the open walls. It is a great advantage to Mr. Cooper, that he has been educated under Mr. Haycroft; for, while it does not prevent him from trying every other manner of forcing, it enables him to adopt the Dutch mode with confidence. Our countrymen, the Scotch gardeners, on the other hand, are not only practically unacquainted with the Dutch mode, but they have the prejudices of us Scots to contend with, against adopting any thing with which we are not well acquainted. There are, however, exceptions among Scotch gardeners; and, among others, we may name our esteemed correspondent, Mr. Wood of Deepdene. Mr. Cooper forces 25 sorts of figs; the duke, like ourselves, esteeming that fruit beyond all others. Some trees which Mr. Cooper has removed from a wall to a forcing-house are 45 years old. There is a vinery stocked with plants 6 years old, producing an excellent crop. Mr. Cooper has invented a very excellent utensil for sending cut flowers to London, or to any distance, without injury: it is simply a cylinder of tin, or of any other suitable material, of 3 or 4 feet in length, and 8 or 9 inches in diameter. In the centre of this is a cylinder of tin of an inch in diameter, which fits into sockets in the bottom and in the lid. Round this small cylinder the flowers are tied as they are upon a maypole; the pole so charged is inserted in the socket in the bottom, then the tube is filled with water, and corked, and the lid put on, in which is a socket, which embraces the tube. The case may now be sent to any distance, the water keeping the flowers cool and fresh. Mr. Cooper informed us that the Duke of Wellington gave him some chestnuts which he had received from America, gathered from the tree which General Washington planted with his own hands, and from which (more fortunate than we have been, though we have received chestnuts three times from the same tree, once from Mrs. Seaton of Washington, and twice from Dr. Mease of Philadelphia,) he has raised three or four plants. We should be curious to know on what principle these chestnuts were sent to the Duke of Wellington: not that the merits of the latter general are at all less than those of the former, because we believe that the actions of all men are the joint results of their organisation and the circumstances in which they are placed; but that we should like to know the feelings of the sender, and whether he was a Briton or an American. We have always had a great respect for the straight-forward character of the Duke of Wellington, and a profound admiration of General Washington; but, with reference to all that is essentially grand in human nature, we have never for a moment placed the former on a par with the latter. As to the Duke of Wellington's private character as a husband and a master, all that we have heard at Strathfieldsaye and its neighbourhood places him, and also the late duchess, very high in our estimation. A spot was pointed out to us where it was intended to erect the new palace, the model for which, we were informed, is in one of the rooms of the present house. We hope it is not a frigid compilation in the Grecian or Roman manner. We should wish to see a magnificent pile in the old English or in the Italian style; such as our correspondents Mr. Barry and Selim, or Mr. Mallet and Mr. Lamb (figs. 1436. and 1660. of the *Encyclopædia of Cottage Architecture*), could design, based by terraces, and united with the scenery by conspicuous offices and out-buildings. The present house is not worth improving for such a park, which, when the purchases made by the duke, who, like a wise man, does not spend half his income, are added to it, will extend 16 miles in length, and include the same length of the river Loddon. Half this length of the river, and the country as far as Southampton, will be seen from the intended palace. After all, however, we have no desire to see a palace built at Strathfieldsaye; and, if the duke acts in conformity with the spirit of the age in which he lives, he will divide his estate equally between his two sons, and let them build what they think fit. Henceforth palaces will only be built for public purposes; the tendency among all private persons is no equalisation; first in knowledge, and, secondly, indeed, consequently, in wealth and comfort.

The charger which the duke rode at Waterloo is kept in a paddock adjoining a small flower-garden, from which the late duchess used frequently to feed him with bread from her own hands. During the battle, the duke was on this horse 15 hours, without once dismounting, and it has never been ridden since that day. It is a small chestnut horse, slightly made, and, as it was quite a colt at the time of the battle, it is wonderful how its strength was equal to the excessive fatigue it must have undergone. There is a proverb in some parts of England, that a chestnut horse is always a good one, and that it will always do more work than any horse of the same size, of any other colour, and this horse seems to furnish an illustration of its truth.

Swallowfield Place, —— *Russell*, *Esq.*—The situation is nearly flat, with a stream passing through it. The house is a large plain building, lately put in thorough repair; and the gardens and grounds are undergoing essential ameliorations, by the gardener, Mr. Brown. The soil of the garden is excellent; and the walls are of a good height. A number of hot-houses are already built, and more are in progress. One of the most complete pine-pits in the country is just finished, and of this Mr. Brown has promised us a section and description. In the melon ground is a strawberry stage, composed of a bank of earth, at an angle under 45°; the earth supported by 1 ft. of brickwork in front, and 3 ft. behind. The space between is divided into steps or beds, each 4 in. above the other, supported by one brick on edge; and along each step a row of plants are placed, which are renewed every year. So circumstanced, the fruit ripens twelve or fourteen days before that on the common surface of the garden. Mr. Brown grows all his strawberries, in whatever situation they may be planted, on one year old plants; finding, like Mr. Knight, that, thus treated, they produce much larger and finer fruit. The Louise bonne pear produces here excellent crops of large and very beautiful fruit. The kitchen-garden is entered through an avenue of catalpas and rhododendrons; at the end of which is a handsome architectural gate; and from this proceeds, to the centre of the range of hot-houses, a straight broad walk, with two remarkably fine borders of herbaceous plants. The pleasure-ground contains a few fine old specimens of cedars, magnolias, tulip trees, American thorns, and other exotics (including large trees of those beautiful plants, *Prùnus* virginiàna and *P.* caroliniàna); which, if they were generally introduced into plantations, would soon be as completely naturalised by the birds as the bird-cherry, being equally hardy with that tree. A summer-house of hazel rods is in the course of erection here, which is quite unique in its way. A skeleton of quartering is covered with heath outside, and the roof is thatched: the interior is then inlaid with hazel rods; not merely disposed in contrasted compartments, as at White Knights, Dropmore, Bagshot Park, and other places, but arranged as landscapes and buildings in perspective, which is done by browning the wood something in the same way as figures are produced by cabinet-makers and joiners on tea-caddies. The ingenious inventor is Mr. Mathews of Frimley, near Blackwater, Berkshire (see p. 615.); and we are informed that a fac-simile of this structure, by him, is intended to be placed in Knight's exotic nursery, King's Road, Chelsea, for the inspection of those who may wish to avail themselves of Mr. Mathews's talents. In the farm-yard at Swallowfield there is an octagon granary, surmounted by a pigeon-house, and surrounded by a rack for fodder, covered with a shed, in the manner of a veranda: a handsome object, and, at the same time, an economical mode of sheltering and feeding cattle or young horses.

Aug. 8. — *Reading to Bear Wood.* We passed Maiden Early, the boundary plantations of which are so thick of trees, that their naked stems are seen through. Opposite, on the Woodley Lodge estate, the proprietor, Mr. Wheeble, has built some comfortable cottages, in the place of some very wretched mud huts which stood there in 1818. These cottages are in pairs; and each consists of three rooms, with a large lean-to pantry, a shed for wood, and a privy. The centre room is a kitchen, 12 ft. by 12 ft., and 8 ft. high; the bed-room to the left is 12 ft. by 10 ft.; and that to the right is 12 ft. by 9 ft. The floor of the kitchen is one step above the exterior surface, and is paved with brick: those of the bed-rooms are one step above the kitchen floor, and are boarded. All the three rooms have plastered walls and ceilings: the door to the pantry is from the kitchen. Some of the cottages have only one fireplace, in the middle room; others have a second, behind the first. The cottagers did not appear to set much value on the second fireplace; and if that in the kitchen had had a cast-iron back (see *Encyc. of Cott. Arch.*, § 314.), the second would have been quite unnecessary. The walls of the cottages are of brick, 4 in. thick, with 9-in. piers at the doors and windows; and the roofs are thatched on poles formed from young trees, the thinnings of the plantations. The windows are of latticework, and the doors are ledged. The symmetry of the elevation of the two cottages is preserved, notwithstanding the difference of size of the bedrooms, by the two larger of the latter being towards the centre. The chimney stacks, in some of the pairs of cottages, are short and plain; in others, somewhat higher, with the flues placed in separate diagonal shafts: but, in others, the shafts are long and circular, the bricks being formed on purpose, and glazed inside. These circular shafts have a square plinth at bottom, and square tops, and they are much the handsomest. We also found, on enquiry at three of the cottages, that those with the long chimney shafts were much less liable to smoke, than those the shafts of which were shorter. To each cottage is allotted 60 poles of land; and this, with the cottage, is let at the very moderate rent of 4*l.* a year. We know Mr. Wheeble to be a most benevolent, intelligent, and liberal man; and we must confess that we felt much gratification at seeing this practical illustration of his benevolence. Estimating the cost of each cottage at 40*l.* (and we do not think they would cost above that sum), the rent charged for the land is not more than would be paid for it by a common farmer.

Bear Wood, John Walters, Esq. M.P.—Being in this neighbourhood in 1818, we had an opportunity of walking over these grounds shortly after they were purchased by the present owner. They then appeared to consist of about 300 acres of heathy waste, and about 100 acres of sloping ground covered with beech and oak trees. A small piece of water was forming on the side of the slope; the walls of the kitchen-garden were built, and the site of the intended house was pointed out to us. The place may now be considered as finished; and we must say, that it has afforded us more gratification than any other newly formed place that we have seen since we left London. We never before saw a residence laid out by Mr. Stuart; and we do think that he has here given evidence of his possessing very great taste and judgment. The taste which he has displayed in leading the walks through the grounds, so as to show them and the views of the adjacent country to the greatest advantage, is admirable; and the extent of these walks, within the space of about 400 acres, is nearly eight miles. The puny piece of water, most ridiculously placed on the side of a steep bank, he has extended to nearly 30 acres, by filling with it the whole of a valley; and other pieces of water have been formed, so as, in all, to cover about 40 acres. The shapes of these pieces of water, with one trifling exception, are excellent; and they are so disposed, and disguised by plantations, relatively to each other, that the difference of their levels is scarcely ever observed. The planting has been executed in masses of one kind in one place; and this principle has been carried even to the smaller shrubs, the herbaceous plants, and the flowers annually planted out in the dressed grounds. The massesin groups have not the formality attributed to those of M. Sckell; but blend naturally into one another, as first recommended by Sir Wm. Chambers, and afterwards by Price, and ourselves. We were struck with this mode of planting, on entering the approach from the London road. This approach is above a mile long, and the greater part of it is planted either on one or both sides. The first trees are oaks, blended with a few larches; then follow chestnuts, with a few Scotch pines; next sycamores, then limes, then elms; next oaks; next larches; then spruce firs, then Scotch pines, then beeches; and, lastly, when arriving at what may be called the Park, or perhaps, rather, *ferme ornée*, pines and firs mixed This approach has been recently made and planted; and appears to pass through lands intended to be cultivated, with the exception of a narrow strip of forest scenery on each side. On arriving at the second gate and lodge, we enter the park; where the trees are of about fifteen years' growth, and are admirably disposed. They are so thinly sprinkled, that each tree of the pine and fir kind has sufficient room to extend its branches from the base upwards, without being crowded by the adjoining trees. The effect of this is, that a very few trees, irregularly placed, produce the appearance, not only of a thick plantation, but of one of the greatest variety of outline; a continually varying succession of prominences and recesses, of different forms and sizes, being presented to the eye in driving along. We consider it one of the greatest excellences of this place, that the fir plantations are judiciously thinned; the trees being clothed with branches from the ground upwards, and their lower branches just touching each other, and no more. The stems of the oak are pruned to a certain height (some of them, in our opinion, too much so); but, in general, we have rarely seen plantations so much to our mind, with reference to ornamental effect, particularly those of the pine and fir tribes. A considerable portion of the grounds is preserved in their original wild state, covered with heath and dwarf furze; and this part, being passed through previously to arriving at the dressed grounds near the house, has an excellent effect. The house, to a stranger, appears not badly placed; but, it seems, since the large lake of water was formed, a very superior situation has been discovered for it. Thither we would certainly recommend it to be taken; for it appears that, even on its present site, it will require to be rebuilt before it can be rendered properly habitable. A roof so completely caricatured by "tall-boys," we do not think we ever before saw, either in London or the country; unless we except that of the new additions to the Duke of Devonshire's mansion at Chatsworth. We by no means dislike the elevation of the house at Bear Wood, which may be characterised as a cottage villa. There are a handsome porch for driving under on the entrance front; and a semicircular colonnade of coupled square columns in the centre of the garden front, with an elegant balcony over. Joined to this is a large conservatory, forming a bend, in Mr. Nash's manner, and serving as a passage to a billiard-room; but, in consequence of the roof of this conservatory being very high, and darkened with the foliage of vines, the plants below do not thrive, and the intention of this elegant appendage is in a great measure defeated. On the entrance front of the house there are rather too many walks and rides, parallel to each other, seen at once: but this may be easily remedied, even if the house be retained in its present situation; and entirely avoided, if it should be removed. The kitchen-garden appeared to us too small, and its situation too low: the wall trees do not thrive; the peaches, in particular, being much infested with the mildew, though the nectarines have escaped. We would recommend the entire renewal of the trees on a border 18 in. deep, seldom to be stirred, and never cropped. The place in general was in good order and keeping. It was shown to us by the gardener, Mr. Howard; who, after accompanying us over all the walks about the lawn, rode with us along the drives; which display numerous fine old oaks and beeches; sometimes the one tree growing in such close contact with the other as to give the appearance of their both springing from the same root. In two or three instances there is an oak squeezed in between two beeches, as if it had been cleft-grafted. There are many thousands of young oaks, of vigorous growth, all self-sown, and from 15 ft. to 30 ft. high, coming up among ferns (*P*tèris aquilìna), some of the fronds of which are 6 ft. and some even 10 ft. high. The islands, and the promontories and shores of the pieces of water, are very judiciously planted: in general, artificial islands are wholly covered with wood, and shores are either one mass of plantation, or are left wholly bare; but, here, trees and lawn are interspersed as they ought to be. Near the house, and in some other places, trees have been transplanted so as to form small groups; and the roots of these have been most judiciously raised a little above the surface, so that each tree rises, as it were, from a slight irregular protuberance; than which nothing gives a more natural appearance, since this protuberance is invariably observed at the roots of trees which have been self-sown, and which are thinly scattered over any surface. Nothing can be more unnatural in its kind than the straight stem of a tree rising abruptly out of a level surface, without the slightest preparation or basement; it looks as if the tree had been cut over from somewhere else, and stuck into the ground.

We had almost forgotten to mention that a pinetum is now commencing, which, we hope, will be in the end extended to an arboretum, with the trees planted at a sufficient distance from each other to allow each to assume its proper size and shape. There is, indeed, a want of foreign trees and shrubs in the dressed grounds of Bear Wood. "The world's applause" is one grand object with all those who build or plant, and to attain this end, in forming the plantations of a country residence, it is necessary to produce in them a distinctive character from that of the natural woods, or artificial plantations, by which they are surrounded. Now this can only be effected by disposing the trees in a manner different from that which is common in the country where the residence is situated; or by the same kind of disposition, but with different characters of trees. Hence, in the infancy of art, when there are no trees in a country but what are indigenous to it; and when these are disposed in a natural manner, being, in fact, the remains of open forest scenery; the disposition of the trees of a residence in lines and geometrical forms produces, at once, the distinctive character desired. On the other hand, when a whole country is enclosed and planted in geometrical lines and forms, the natural mode is resorted to for the same end. These two styles of landscape-gardening may almost be said to have become exhausted in England. A man of wealth and taste now hardly acquires any distinction by planting a park with indigenous trees, either in the ancient geometrical, or in the modern natural manner. This distinction can now seldom be produced, but by having recourse to exotic trees, disposed either in the natural or in the geometrical manner, or in a mixed style, according to local circumstances and the end in view. This is the commencement of a third era in the progress of landscape-gardening.

We recommend Bear Wood both to the wealthy citizen who wishes to create a country residence, and to the young gardener who is desirous of acquiring the art of laying out grounds. To the former we recommend it, as showing the sort of soil, which, from its general unsuitableness for corn culture, as well as from its dryness and its elevated situation, may most economically and judiciously be employed in plantations and pleasure-grounds, and as a healthy site for a house. Not only is the cost of such land considerably less than that of rich soils, but, from its friability, it is more easily worked; and, as from its poverty grass and weeds do not grow freely on it, the dug grounds are kept hoed, and the lawns mown, at less expense. There is also, in such a case, the satisfaction of creating, not only a habitable, but a beautiful residence out of a wild, and apparently useless waste; and, in all this, the pleasure is enhanced by the consciousness that the expense incurred is moderate. No man of good taste will ever make choice of a low, flat, dull, sleepy situation, and a rich loamy soil, for a country residence. Were we to fix upon a spot for building ourselves a villa, at a short distance from London, on the west side, it should be on some elevated knoll on Bagshot Heath; on the east, we would select the remains of chalk hills and chalk pits in Kent, high above a noble reach of the Thames, like the beautiful Elizabethan villa of Mr. Sheriff Harmer, near Greenhithe; on the south, we would choose a spot on the highest and poorest part of Leith Hill; and on the north, if we went beyond the commanding situation of Mr. Longman's villa at Hampstead, we should be at a loss where to stop till we had reached Cumberland, where the site of Elleray, the residence of the celebrated poet and philosopher, Professor Wilson, rises before our imagination. It is only on situations that are considerably elevated, and at the same time varied on the surface, that the art of landscape-gardening can powerfully affect the imagination; and, without operating on the imagination, no work of this art, or of any other, can ever be worth notice as such. Without considerable elevation for the site of the house, it is impossible for it to display that attitude of command which is the essential cause of the emotion of sublimity; and without considerable variation of surface, it is equally impossible to add to the sublime, the beautiful, the varied, and the picturesque.

At Bear Wood, the young gardener will learn more of landscape-gardening than in any other place which we know, within the same distance of London. He will there see a practical illustration of the principles of massing, grouping, and of every kind of planting; of varying the outline of water; of managing pieces of water on different levels; and of judiciously thinning plantations.

(*To be continued.*)

REVIEWS.

Art. I. *Catalogue of Works on Gardening, Agriculture, Botany, Rural Architecture, &c., lately published, with some Account of those considered the most interesting.*

Anon.: The Gardener's Dictionary, containing the best and newest methods of improving and cultivating the Kitchen, Fruit, and Flower Garden and Nursery; as also for performing the practical parts of Agriculture, including the managing of Vineyards; with the methods of making and preserving Wines, according to the practice of the most skilful Vignerons in the several wine countries in Europe. Together with Directions for propagating and improving, from real practice and experience, all sorts of Timber Trees. By Philip Miller, F.R.S., &c. The ninth edition; being a copy of the latest edition which was published in the Author's lifetime, and modified to the latest Discoveries in Botany and Gardening in all their branches. To be published in 50 8vo numbers, at 1*s.* each: to form 4 volumes.

This is one of two simultaneous editions of Miller's *Gardener's Dictionary*, which are now publishing, or are about to be published; one in quarto, and the other in octavo, and both without an editor's name. The specimen before us consists of 48 pages and four plates; the letter-press is chiefly occupied with botanical descriptions, commencing with *Á*bies and terminating with *A*càcia. We are, therefore, not enabled, from this specimen, to form an estimate of the merits of the work, as far as respects practical gardening or agriculture; but we can judge of the general style in which it is got up, and of the plates. The greater part of the article *Á*bies is the same as that article in the *Penny Cyclopædia*, understood to be prepared by Professor Lindley; but the compiler, in the work before us, has ignorantly tacked to it several quotations which refer to the genus *P*ìnus, or what is vulgarly called the Scotch fir. The historical notices of the different species are exceedingly meagre, and throughout the whole there are not a few typographical errors: such as deudrographia for dendrographia, Stanwick for Alnwick, Nichol for Nicol, Browne for Brown, semperoriens for sempervirens. In giving directions for sowing larch seeds, we are told to cover them half an inch deep, which must be an oversight for a quarter of an inch; indeed, an eighth of an inch would be nearer the most successful practice.

The worst part of the book is the plates, and they may really be described as execrable, particularly Plate III., which professes to contain portraits of a larch, a silver fir, a cedar, and a Norway spruce fir. The choice of the specimens is faulty, inasmuch as they represent the forms that have been taken by particular individuals of great age, instead of the general form of the species about middle age. The execution is so bad, that, without the assistance of the names, we defy any one to tell what tree is meant to be represented, with the exception of the cedar, which might be guessed at. The branches of the larch are made to resemble ostrich feathers; and the silver fir is drawn with five leaders! It would be much better for the purchaser if the plates were altogether omitted, and the same expense which is now incurred in producing them laid out in increasing and improving the letter-press.

The botanical doings in the book are, through haste or ignorance, crude enough, and are devoid of that definitiveness, careful accuracy, and clearness, which botanical readers of the present day expect. We do not recommend a dictionary of any art or science, for reasons given in the preface to the first edition of our *Encyc. of Gard.*, but, where that form is adopted, we expect to find the subjects well treated of where their letter places them. This is not the case in many instances. To take an example or two:—Abrònia umbellàta. Although generic and specific characters are professedly given, both are omitted in this. We are told that it is "a small but very beautiful and elegant perennial evergreen herbaceous plant, producing flowers surrounded by an involucrum of a charming rose colour." This last clause does not state its own meaning; which is, that the flowers, of a charming rose colour, are surrounded by an involucrum. In the description of A'brus precatòrius, we have only two hints that the plant bears leaves at all, and not a syllable is said of their form, markings, degree of persistence, &c., and, above all, of their extreme sweetness when chewed; nor is the fact hinted, that the plant's trivial name of "wild liquorice" is derived from the sweetness of the leaves and roots. In the description of *A*càcia cornígera, the following sentence is necessarily perfect nonsense; although a person who knows the plant, as many of our gardening friends do, may guess its meaning. "The leaves and flowers are small, yellow, and void of scent, in a close cylindrical spike, and a inch and a half long." The man who let such a sentence pass could not have an accurate guess, not to say knowledge, of the form of the objects described.

The editor seems so unfamiliar with the botanical epithets, as to be unable to spell them accurately: thus we have cineria for cinerea, nigrecans for nigricans, stipulacia for stipulacea, felicina for filicina, casioides for cassioides; and typographical errors besides in plenty.

The work is behind the time. By abbreviations and signs that could be recognised at first sight, it would be possible to express what is expressed in half the space. Not an accent is given. The translations are not always literal: thus, we have "Acacia pulchella, zigzag spiny Acacia;" "nigricans, unequalled winged." We are sorry to see a person professing to teach on botany, as any one who writes on it does, not better qualified for his task.

Doyle, Martin [the assumed name of an Irish clergyman, who had for several years the direction of an agricultural school], Author of "Hints to Small Farmers," and of many useful little Tracts, and *Edmund Murphy*, late Acting Secretary to the Horticultural and Arboricultural Society for Ireland: The Irish Farmer's and Gardener's Magazine and Register of Rural Affairs. In monthly numbers, 8vo, 1*s*. each. No. I. Nov. 1833.

If this magazine be properly supported, we should anticipate, from what we know of its editors, that it will be one of the best of our imitators, numerous as they now are. The only doubt that we have as to the work is, the propriety of joining a farmer's magazine with one for gardeners. The farmers in England are, at this moment, the only class of men in the country who do not read; those in Ireland are not likely to be much better; and for this reason the expected purchasers of the work must be the country gentlemen and the gardeners. We do not think the latter will care much for discussions on farming, and therefore we would suggest the propriety of separating this shilling magazine into two sixpenny ones. We throw out these hints for the consideration of the editors, most sincerely wishing the success of the work, either as it is, or altered as we suggest. The first number, now before us, we consider to be a very favourable example of what such a work ought to be, notwithstanding Mr. Murphy's apology for it, on the cover, as not being a fair specimen, from the more important London periodicals for October (owing to some accident) not having arrived in Dublin when he was obliged to go to press. The best paper in the number is one by Mr. Murphy, on forest planting; another, by him, on late pruning, that is, pruning deferred till the trees attain a large size, rather mistakes, as we think, the object of Mr. Blaikie in pruning by foreshortening. It was no part of Mr. Blaikie's plan to "promulgate a system of late pruning," but rather to diminish the injury done to corn fields by hedgerow trees which had not been properly pruned in due time. Mr. Murphy considers two inches as the maximum diameter of a branch which can be safely removed close to the bole; larger branches he would foreshorten, that is, cut off at a considerable lateral or secondary branch. He says that he has "seen more trees, not only disfigured, but destroyed, by late pruning, than by any other malpractice, neglect of thinning alone excepted."

In the introduction to the agricultural part of the work, we are informed that "Irish farmers, of the lower classes especially, despise any thing that appears in print on the subject of agriculture." The same thing might be said of English farmers. The state of agriculture in Ireland is compared with what its state was in Scotland about the beginning of the last century, and their condition said to be nearly the same, except that Ireland is in rather a worse state than we are aware of Scotland having ever been in. Scotland being now the theatre of the most improved agriculture of the three kingdoms, in consequence of the intelligence of her farmers, it is very properly argued that Ireland may become equally so by the same means. At the conclusion of the work are given some extracts, a review, and notices of the transactions of Irish provincial horticultural and agricultural societies.

We hope Mr. Murphy will gratify us by notes of his personal inspection of Irish gardens of every description, from those of the cottage to those under the care of Mr. Nevin; whose paper on villa plantations affords a favourable specimen of his taste.

Ballard, Stephen: A Treatise on the Nature of Trees and the Pruning of Timber Trees; showing the Impossibility of increasing the Quantity, or improving the Quality, of Timber by Pruning. 12mo. Ledbury, 1833.

Mr. Ballard describes the manner of the growth of timber trees very faithfully. He maintains that mutilation of any one part of such trees must necessarily affect every other part, by checking its enlargement. Hence he infers, that all pruning is prejudicial; more especially the practice of those who prune off the branches with a view to enlarge the trunk. This latter idea he rejects and with much reason refutes. He is, however, chargeable with misrepresentation, when he asserts that the sole object of the forest pruner is to obtain bulk of stem. This is not true; because the *length of the bole*, and the *clearness of its grain*, are equally the objects and intention of the pruner's labour; since without both these no timber is valued, except for veneers or other cabinetwork. Length of stem and clearness of knots, whether dead or alive, constitute the *strength* and *value* of timber; and this is indirectly admitted by the author himself, when he states that fine straight boles are formed without the aid of the pruner, but, notwithstanding, by what is equally efficient, viz. the proximity of other trees, or by the browsing animals of the park or forest. By this admission, he not only shows the necessity, but also the practicability, of judicious pruning, and thereby overturns all he had advanced as condemnatory of the practice.

That the oak sheds its spray, and the larch many of its lower branches, whether standing alone or among other trees, is well known; but why is this circumstance noticed by the writer? Surely not as an argument against pruning! One would think it tells the other way: for what are all our manipulations, in this and other processes in the management of trees, but to *assist nature* to produce qualities as well as quantities of her vegetable gifts?

Mr. Ballard must know, that, were the oak, beech, Spanish chestnut, and many other kinds of trees permitted to stand alone, untouched by the knife of the nurseryman the bill of the forester, or the bite of cattle, they would only rise into *vast bushes*, more bulky, perhaps, in the aggregate, but wholly worthless to the builder.

Without the least intention of giving offence, especially as Mr. Ballard appears well acquainted with the structure of timber, we would beg to ask, whether he would choose a beam thirty or forty feet long, squared from a but that had never been pruned, either by accident or design? It is presumable he would not; for, even granting that the numerous knots were all sound, the transverse strength of such a beam could not be relied on. Mr. Ballard's antipruning principle is totally inapplicable to young forest trees; though he avers that unpruned apple trees gain greater volume in a shorter time than those that are got into form by pruning. Of this there can be no doubt.

Mr. Ballard appears to be an intelligent man; and, had he confined his strictures to *improper pruning*, his opinions might have been serviceable: but to condemn all pruning, as being not only useless, but injurious, is an opinion with which but few will coincide.—*J. M.*

Hogg, Thomas, Florist, Paddington: A Supplement to the Practical Treatise on the Culture of Florists' Flowers; containing additional Directions and improved Modes of cultivating the Auricula, Polyanthus, Tulip, Ranunculus, Heartsease, Carnation, Georgina, &c. 8vo. London, 1833, published for and sold by the Author.

These directions are contained in 208 pages, and are enlivened by some curious and amusing anecdotes of flowers and florists. To the routine practitioner who does every thing by rule, and to the young amateur who is anxious to know something of the subject, the directions for cultivating the flowers will be found useful; while the thinking and experienced cultivator will, perhaps, consider the flower lists as the most valuable part of the work. By some, this volume may be considered dear, as compared with other horticultural publications of the same size; but it must be recollected that many of these works are mere compilations, while this by Mr. Hogg is original.

In raising tulips from seed, some florists make choice of that which has been produced by variegated flowers: in which case it is alleged that the offspring breaks, or becomes variegated, much sooner than that from plain or self-coloured flowers. Other florists, on the contrary, select their seeds from plain flowers, and wait with patience many years till the flowers of the offspring become variegated. Applying the general principle of cross fecundation to tulips, it has been of late recommended to fecundate plain flowers with variegated ones, in the very rational hope that the offspring will the more speedily become variegated, and will, at the same time, form strong healthy bulbs. Mr. Hogg, as we do, entertains strong hopes from this last mode, and invites all florists to give it a fair trial. (p. 45.)

An article is given on the heartsease; a flower towards which florists have lately turned their attention. By cross impregnation of the species *Vìola trícolor, lùtea, grandiflòra* and *amœ̀na*, all of which are included under the term heartsease, innumerable flowers have been produced, admired for their size and for the richness and disposition of their colours. A list is given of nearly 100 select sorts, which, Mr. Hogg informs us, are at present in great request, and may be obtained of him. Nothing can be easier than the culture of this plant, and, indeed, we find nothing in Mr. Hogg's short article on it to add to the directions already given by Mr. Gorrie. (Vol. VIII. p. 573.)

The new German China asters, introduced within these three years, are strongly and deservedly recommended by Mr. Hogg. We were very much struck with them, in the beginning of September last, in the beautiful garden of the Misses Garnier, at Wickham, Hants; where they were raised from a choice selection of seeds, purchased from Mr. Charlwood. The flowers are much larger than those of the common China aster; in general, "they are more double, and the colours, whether plain or striped, are more rich, distinct, and varied. The seeds should be sown the first week in April, in order to get the plants strong and forward, either in pots or seed-pans, keeping the sorts distinct; the pots may then be placed in a cold frame till the plants come up." When they are of the proper size, they may be transplanted into beds or borders, like the common varieties. A few of the finest and most distinct varieties are: — Deep red; deep red, striped; pale red; pale red, tipped with white; dark blue; dark blue, striped; pale blue; pale blue, striped; yellow-tinged; white; silver white; flesh-coloured; ash-grey, &c.

We recommend the following observations to the attention of the young gardener: old ones will, of course, reject them with contempt: — "Gardeners unaccustomed to flowers are, in general, bad propagators; few of them have any right notions of piping; and, though nothing is more simple, they never set about it as if they wished to succeed. They are, likewise, great bunglers in layering; there is not one in ten whose assistance I would claim upon the most pressing occasion, if I were obliged to leave the operation to him, uncontrolled and unlooked after: whereas I could trust implicitly to any amateur cobbler, tailor, weaver, or barber, who had had the least practice with his own flowers, to do this layering in the most satisfactory manner. This I know, from experience, that very few professed gardeners, unless fond of the flower itself [the carnation], seem to take any care of it, either to treat it rightly, or to bloom it well." (*Supp.* p. 130.)

Speaking of the arrangement of tulips, Mr. Hogg states that the hints given by us (Vol. II. p. 309.) for an improvement in this department "were rejected by all our amateurs, who pretended to any taste in these matters, as totally inapplicable." So were hints founded on the same principle, offered by us to the Royal Academicians, in a pamphlet published nearly thirty years ago, for classing the pictures in the annual exhibitions at Somerset House: that is, placing all landscapes by themselves; all historical pictures by themselves; all portraits, &c. &c. We are certain, however, that these hints will, sooner or later, be adopted; possibly even in the Gallery now building. What we proposed to do in a show tulip-bed was founded on the same general principles that we applied to the exhibition of pictures; viz. to preserve each class or kind by itself, such as roses, bybloemens, bizarres, &c., instead of indiscriminately mixing them from one end of the bed to the other. By the mode suggested, we maintained, and do maintain, that the general effect would be more impressive, and the examination in detail far more interesting and instructive; and every one capable of generalising on the subject of arrangement and variety, though he never saw a tulip, will allow this to be the case. That the "amateurs of taste among florists" should not allow this also, is, to us, not surprising: we attribute it to their prejudice for established custom, in most cases, and in others to their incapability of taking an enlarged view of the subject. The limited sphere of beauty within which a florist's admiration is commonly confined, precludes ordinary minds from taking in enlarged ideas. We refer the reader to what we have said on this subject in Vol. II. p. 309., and in various other parts of this Magazine.

Having now noticed some of the useful matter contained in Mr. Hogg's work, we shall next refer to some of those portions of it which we consider curious or amusing; such as the anecdotes concerning Isaac Emmerton, a celebrated auricula-grower (p. 158.), and his unlucky pupil. (p. 161.) Emmerton, it seems, was a nurseryman at Barnet, but was imprisoned, and ultimately ruined, by the clergyman of his parish, who was a magistrate, and whom Emmerton had insulted by hanging him in effigy on a tree in his garden. The story of Captain M'Tulpin (a nickname for a Lancashire florist, who endeavoured to settle, some years ago, in the neighbourhood of London, and who commenced a work on tulips) will be understood and relished by some of the fancy. In the last page of his work, Mr. Hogg refers to the bad debts in his ledger; in which, he says, there are sixty names, noble and ignoble, and that the conduct of twenty of these has been fraudulent and dishonest in the highest degree. He adds, that he would publish their names, did he not feel for their unoffending offspring.

Royle, J. Forbes, F.L.S. and G.S. &c. &c. &c., late Superintendent of the Honourable East India Company's Botanic Garden at Saharunpore: Illustrations of the Botany and the other branches of the Natural History of the Himalayan Mountains, and of the Flora of Cashmere. London, 1833. 4to. In 10 Parts, 20*s*. each. Part I. 10 coloured lithographs, 40 pages of letterpress.

The first part of this work was published in the middle of October. Of illustrations, it contains 10 lithographs, which bear coloured figures of the following objects: one animal, the

Lagòmys alpìnus *Desm.*: plants; *A*nemòne díscolor, *R*anúnculus polypétalus, *I*sopỳrum grandiflòrum and microphýllum, *D*elphínium cashmeriànum, *A*conìtum heterophýllum, Cimicífuga frígida, Meconópsis aculeàta, *C*orydàlis cashmeriàna and Govan*iàna*, Tauschè*ria* desertòrum, *V*ìola sérpens, renifórmis, and kunawurénsis, and Gréw*ia* elástica. All these plants are pretty, or interesting for their rarity; but the *D*elphínium, *A*conìtum, Cimicífuga, and Corydálides are showily ornamental. No text descriptive of any of the objects of these figures is supplied in the first part, but is to be published in the second. The omission of it from the first is stated to be owing to the length to which "the observations respecting the geographical description of the Flora of Northern India have extended." These are long: they occupy, in the first part, 40 quarto pages, and are not concluded. But, although long, they are very interesting. They communicate a multitude of facts on the characters of the tracts of country explored, of their boundaries, elevation, soil, atmosphere, temperature, conditions of climate according to season; and of circumstances of this nature. The facts, and the lists of plants, &c., as successively mentioned, are compared with those of other countries in the four quarters of the globe; and one of the objects of this comparison seems to be, "to show, that, in the [Himalayan and Cashmerian] climates in which these varied productions grow, others from different countries may be successfully introduced."

This work will be valuable in supplying a rich mass of facts on the natural history (using this term in an extended sense) of a part of the world, of which our knowledge has hitherto been very vague and partial. For the sake of science, we wish the work were not produced in a style so costly, that but few can possess themselves of it.

Smith, John, nearly twenty years Gardener to Dykes Alexander, Esq., of Ipswich: A Treatise on the artificial Growth of Cucumbers and Melons, conjointly with that of Asparagus, Mushrooms, Rhubarb, &c.; comprehending Observations on the methods now in use for the growth of Cucumbers, with a full explanation of an improved mode of culture, by which, with a much less quantity of the fermenting substance, and a tithe of the care and attention which is generally bestowed upon them, not only is success rendered certain, even in the most adverse season, and fruit of the finest appearance produced, but Asparagus, Mushrooms, Rhubarb, &c., are at the same time produced, of excellent quality, and with the greatest possible celerity:

to which are added, Brief Observations on the growth of early Potatoes. 12mo. Ipswich, 1833.

The author sets out with some observations on the different modes hitherto employed in growing cucumbers in hot-beds or pits. These modes, he truly observes, are very numerous; but he confines his remarks to "a very few," which include the principles of all the different modes. The first which he notices is the "common dung-bed mode of growing," which he objects to, on account of the loss of time, labour, and heat; and also on account of the unequal settlement of the bed. The next mode is that of Mr. Knight, the President of the Horticultural Society, described in Vol. IV. p. 368., which Mr. Smith says he tried, and found defective, two or three years before Mr. Knight recommended it. Platforms, supported by posts or brick piers, were tried for several years; and of this kind of bed Mr. Smith observes, "although the best cucumbers which ever came under my notice were produced in it, and balsams 16 ft. in circumference, yet, for want of a proper substance against which to build the linings, and the almost entire destitution of means to supply heat by absorption and conduction, experience has taught me that the principle cannot with safety be depended upon, when used for early forcing." (p. 7.) Brick pits are allowed by Mr. Smith to have various good qualities, especially M'Phail's pits; but Mr. Smith objects to all fixed structures, as being "perpetual habitations for millepedes [meaning woodlice]," and also because they prevent the slope of the glass from being altered according to the season; Mr. Smith very properly observing, that the elevation of the glass ought to be considerable in winter, but that it cannot well be too little in the hottest weather of summer.

Having disposed of these three modes of growing, which may be considered the types of all those which have hitherto been adopted, Mr. Smith's next chapter is on rearing plants from seed, "fit for the fruiting-bed;" which we pass over to the succeeding one, which treats of Mr. Smith's mode of building a cucumber bed. The materials wanted are, a quantity of stones or brickbat rubble; a quantity of good stable dung, or a mixture of it with other substances, such as leaves of trees, in a medium state of fermentation, &c.; a quantity of wattled work; some good soil, laid where it can become dry; and a common frame and lights, from 4 to 6 ft. wide, and 12 ft. long. In building the bed, the first thing is to form a foundation, in the back and front, of rubblework, enclosed with wattled work. The width of these foundations may be between 2 and 3 ft., and the height of the north foundation about 15 in. on the outside, and that of the south about 3 in. lower on the outside; so that the surface of the two foundations when finished shall be on one uniform slope from back to front. Outside of these foundations four posts should be previously inserted for regulating the height of the dung, 4 ft. high from the ground behind, and 3 ft. 6 in. from it in front. The next thing is to build two dung walls on the top of the foundations, to the same height as the posts, trimming the inner sides of these walls, and making the bottom of the space between them quite clean. This space must then be covered by pieces of wood, strong enough to bear the soil in which the plants are to be grown; on these pieces are to be laid wattled hurdles, on which are placed about nine inches of dry dung, or fermenting dung, for the plants to feed upon. The next operation is to put on the frame and lights, &c., stopping up the ends of the vault or space between the beds with pieces of board and litter, and building a lining very firmly against them. Litter must be also placed against the bottom of each rubble foundation, high enough to keep in the steam. Such is an outline of the structure of Mr. Smith's cucumber bed; all the rest may be easily anticipated by any good cucumber grower.

Mr. Smith takes advantage of the heat and steam generated in the vault between the two dung walls, to force asparagus or other articles, or to grow mushrooms, in an adjoining frame. For this purpose, he places a common frame at one end of his cucumber bed, and admits the steam from the vacuity between the walls into it, by means of a metal or wooden tube 2 or 3 inches in diameter, and 3 or 4 feet long. One end of this tube is placed in the vault, and the other in a hole in the side of the frame. A thinking gardener will conceive all the rest, or have recourse to the work itself.

In treating of the management of the cucumber and mushroom, Mr. Smith considers the best mode of destroying those pests of the gardener, woodlice, to be enticing them to some shady spot "by dry litter, crums of cheese, &c., and then pouring boiling water upon them." To prevent the rank steam of the dung linings from entering the bed at the projections of the sashes, when air is given, Mr. Smith nails a strip of Russian bast, 18 in. wide, on the upper part of the back of the frame, turning it over the upper rail of the lights, and fastening it to the lights or rafters so as to prevent its being blown down. When air is given, this keeps out high and strong winds as well as steam.

It is evident that melons may be grown in the same way; and Mr. Smith remarks, that the necessary balance of heat and moisture, which, in Persia, arises from the very nature of the climate and mode of cultivation, is easily obtained in his bed, " by throwing a sufficient quantity of water into the vault beneath the wattled work, to cause, by means of a strong heat, a constant and great exhalation," &c. The stems of the melon-plants he would train on a trellis elevated 2 or 3 inches above the soil.

We have now, we think, given a general idea of Mr. Smith's mode of growing cucumbers and melons; but, in order to adopt it with facility and success, the work itself will require to be referred to. Our own opinion is, that the mode is excellent, and particularly adapted for amateurs in small gardens. Rhubarb or sea-kale might be beautifully forced in the vault; and by a very little management, pelargoniums might be kept in the adjoining frame, if it were not thought necessary to force asparagus or grow mushrooms in it. The book is very modestly and sensibly written, and we have been very much gratified by its perusal, and by a passage in the dedication to his master, in which Mr. Smith expresses " the deep veneration and respect which have been inspired by the general good feeling" which has been exercised towards him " during a long servitude." It cannot be too deeply impressed on the mind of every master that he has it in his power to render not only the individuals who are his servants, but their wives and families, comparatively happy or miserable. Again we recommend this work to all cucumber and melon growers.

Art. II. *Literary Notices.*

A Journal of Botany has been commenced by Dr. Hooker. It is to be published in quarterly numbers in demy octavo; each number is to contain eight plates, of which four are to be coloured: price 7*s.* 6*d.* It is, in effect, a new series of the far-famed *Botanical Miscellany.*

A new edition of Miller's Gardener's Dictionary, to appear in monthly quarto parts, is in preparation. Who the editor is, is not mentioned, but the list of contributors contains twenty-four names, eminent in botanical or horticultural science; almost the whole of whom are, or have been, contributors to this Magazine.

A Catechism of Gardening, for the Use of Village Schools and Cottagers. We observe a first part of a contribution of this title, by a friend of ours, in the November number of the *British Farmer's Magazine.* When the treatise is completed, it will be sold in a detached form.

MISCELLANEOUS INTELLIGENCE.

Art. I. *General Notices.*

National Education. — After the pains which we have taken in this Magazine, in the *Mag. Nat. Hist.*, in a pamphlet published in Paris in 1828, and in another printed in London in 1829 and distributed gratis, it may readily be conceived that we are highly gratified by seeing the subject brought before Parliament in a masterly manner; and assuming a conspicuous place in both the *Edinb.* and the *For. Quart. Reviews.* In the latter work, more especially (No. xxiv. for Oct., 1833), a lucid account has been given of the system of national education established in Prussia in 1819, to which, and to *The Speech of Mr. Roebuck, M.P. for Bath, on National Education* (London, 1833, Pamph., 3*d.*), we would most earnestly direct the attention of such of our readers as take an interest in the subject. The law on the subject of national education in Prussia is particularly gratifying, and there are only two improvements which we can suggest in it, if adopted in this country. In Prussia it is provided, that, besides a proper school, with all suitable books, instruments, pictures, models, a garden, &c., there shall be provision made for teaching gymnastic exercises. Now, we would suggest that, in connection with these gymnastic exercises, the boys should be taught some of the more useful mechanical operations, such as carpentry, masonry, smith's work, &c.; and the girls the practice of cookery, and various in-door works. It is already most happily provided by the Prussian system, that every school shall have a garden, in order to teach gardening and agricultural operations to the boys, and, to a certain extent, to the girls, as in Bavaria, &c. The next point which we would suggest, in the adoption of a plan of national education in this country, would be the practice in Bavaria, of teaching no particular religion in the schools, but allowing the children, if their parents desired it, to be absent from the school one of the working days of the week, say Saturday, to be taught the religion of their parents by the clergyman of that religion, leaving the Sunday as it is. This would give some additional labour to the clergy o every denomination, but they would still have five days out of the seven at their own disposal: besides, this early instruction would diminish their labours when the children were become men and women. For what are the duties of a clergyman but education, only directed to the man instead of to the child? We are perfectly satisfied that no system of national education that combines religious instruction with secular learning will ever be effective in attaining the grand object of national education; that is, of educating the *whole* population; for the obvious reason, that the whole can never be brought to think in the same manner on religious subjects. — *Cond.*

A Notice of a newly invented Liquid Mixture for destroying various Species of Insects which infest Plants. — Sir, Mr. Taylor, a friend of mine, and myself, have taken great pains to find out something serviceable for destroying or retarding the progress of some of those pernicious kinds of insects so troublesome to gardeners, such as the brown and white scaly bug, caterpillars, green and black aphis, red spider, wireworm, and the beetle which destroys the young shoots of various shrubs and plants in the spring, at the time they are bursting. I am happy to say that we have succeeded in our object beyond our expectation, in producing a solution free from all poisonous or pernicious matter: the contents of it are so harmless that it may be used with the greatest safety upon the most delicate plant or fruit. As the production of this mixture has cost us some considerable labour and expense, we intend to confine the manufacture of it to ourselves. We have been able to bring it into a very portable compass, and this effect subserves the sending of it to any distance without an inconvenient expense, insomuch that one gallon, when diluted with twenty gallons of water, will be sufficiently strong for use, and in general it may be applied with the garden engine or syringe. The conservatory or green-house, when it is applied to the plants in them, should be shut up close, and rendered a little warm, and the evening be preferred for the time of making the application. This may be repeated as often as it is thought necessary, for it will be generally found that the insects will not disappear rapidly, but they, particularly the green fly, will leave the plants by degrees, while the influence of the applied mixture on the plants themselves will be such as to greatly promote their growth, and the production of a healthy bloom on their foliage. The cost of one gallon will not amount to more than 1*s.* 6*d.* It is not our intention to supply it to the public until it has been tried by some one for two or three months previous, as it requires more time to destroy some insects than others; such as the scale-like ones. We are desirous to give any individual an opportunity to subject our preparation to a fair trial for two or three months, and shall be extremely happy to supply any person with a quantity sufficient for a trial of its merits, gratis, and with directions. Should you think it desirable to make a trial, perhaps some one near you, through your recommendation, might be inclined to prove its effects, so that you might see the effects of it personally. The solution, to answer the above statements, will require to be made up in three distinct portions, so as to act upon the whole of the different insects. Should you think our labours worthy of your notice, we shall be extremely happy to forward any other information that lies in our power along with the solution. We remain, Sir, yours, &c. — *William Taylor and James Rollins.* 9. *Richmond Terrace, Liverpool, November* 26. 1832.

It was a long time before we had an opportunity of getting the value of the liquid sent put to the test, but at last we found one at Gunnersbury, the gardens of which have been lately put under the direction of Mr. Mills, the author of a valuable paper on the cucumber, published in an early volume of the *Trans. Hort. Soc.*, and quoted in our *Encyc. of Gard.* Mr. Mills's letter is as follows: —

"Sir, Agreeably to your wish, I herewith send you the result of the experiments made with Taylor and Rollins's mixture, which you were so kind as to send me. I tried it, in the state in which I received it, on a pine fruit infested with the scale, with a syringe, and made the fruit quite wet all over; it killed the scale, and I did not perceive *that it injured the fruit.* I used it, reduced in strength, as recommended, syringing with it the pine plants all over, every other day, but it did not appear strong enough in that state to destroy the scale. I also syringed with it, reduced as recommended, plants of the Thunbérg*ia* alàta, infested with the red spider: it did not kill them. I soaked two crowns of Providence pine twelve hours in the liquid as received, and it killed the crowns. I think if about one gallon were mixed with ten gallons of water, it would not be too strong for *the most tender plants:* I am trying it in that state, and shall have much pleasure in sending you the result. On the whole, I think it likely to be useful; and wish well to Mr. Taylor and Mr. Rollins for their attempt to destroy some of the enemies to the welfare of the objects of our care. I would recommend them to publish their method of preparing the mixture, as much more likely to answer their purpose, at least that is my opinion; and I will, should they do so, be a subscriber, if the subscription is not more than 5 or 10 shillings. Perhaps it would be as well if they were to let as many people as they can have some of the mixture, to try it, before they attempt to offer it by subscription. I am, Sir, yours, &c. — *George Mills. Gunnersbury, August* 28. 1833.

Breathing Places for Towns. — This subject, which we noticed at length in Vol. V. p. 686., and in different other parts of this Magazine, has, to our agreeable surprise, been taken up by Parliament, on the motion of Mr. Slaney. The report on the subject having appeared in all the newspapers, we need only state here, that it points out various modes in which the breathing places in and about London might be extended, and that it enters into similar details with reference to some of the larger country towns. Though we class reports of this sort among attempts at petty legislation, which would never be made under a proper representative system, yet we hail it as a symptom of a better feeling existing towards the poor. Most assuredly the time is not far distant, when the wants of the poor will be attended to as well as those of the rich; but this must have a beginning, and Mr. Slaney's report may be the entering of the wedge. We hope, when trees and shrubs are planted in these walks, that as many different sorts as will grow in the given situation and climate will be employed. It is disgraceful to the taste of the Commissioners of the Woods and Forests that they have employed nothing but the common mixture in the Regent's Park; which, as we have often said, and shall continue to repeat, might have been one grand arboretum, such as could not be produced in any other country.

The Application of Steam to Agricultural Purposes is said to have lately called forth a powerful and effective engine in France; and it has, at the same time, produced a steam-digging machine in England. This engine, an imperfect model of which we saw three years ago (see Vol. VI., p. 106.), has lately been so far improved, that a patent has been taken out for it, by Mr. Philips. It will be found figured and described in Gordon's *Journal of Locomotion*, for February, 1833. We have lately seen the model of another machine, which may be applied to the same purpose, and, as it appears to us, with much greater chance of success. At one operation, it could be made to plough, pulverise, roll, sow, and harrow a breadth of 10 ft. or 12 ft., at the rate of 5 or 6 miles, and, consequently, between 7 and 8 acres per hour. The machine might, no doubt, be impelled at double that rate; but it is questionable whether at such a velocity the work of sowing could be properly performed. The present, however, is not the time for bringing out such a machine in England, where the farmers, in most districts, are obliged to take down and conceal the wheels of their threshing machines, if these have not been already burned by their labourers.

Chinese Roses may be propagated from single Buds, as Grape Vines are propagated. — The single bud, with a quarter of an inch of the stem both above and below it, is placed just under the soil, under a bell glass; the leafstalks and leaves standing upright as in a cutting. A single bud of *R*òsa semperflòrens sanguínea was planted on July 26., and on Sept. 8. the bud had grown nearly four inches, and a blossom bud was formed. On Oct. 9. it was six inches high, and side shoots were being produced. — *Charles M. Willich. London, Oct.* 23. 1833.

The Melon's Affection for Water. (p. 591.) — The author of the *Domestic Gardener's Manual* may not be far wrong in deeming the melon partly of an aquatic habit, from its roots having grown into a water cistern.

In vol. ii. of the *Journal of the Royal Geographical Society* is a very interesting account, taken from the papers of the late Mr. Wm. Moorcroft, of the floating gardens of Cashmere, where both melons and cucumbers are grown in great perfection. The beds are described as only 2 ft. deep and 7 ft. wide, and of various lengths. — *Charles M. Willich. London, Oct.* 23. 1833.

Foreign Grapes. — We have never seen foreign grapes, whether from the continent or Portugal, in greater abundance, of better quality, or cheaper, than they are this season. Nothing can exceed the size and beauty of the Hamburgh or Frankenthal grapes, brought from Holland, and sold in London from 1*s.* to 1*s.* 6*d.* a pound. Arriving in less than twenty-four hours by the steam-packets, they have all the plumpness and bloom of fresh-gathered fruit. The black Portugal grapes also arrive in little more than a week by means of the steam-packets; and though part of the bloom and freshness of appearance of their berries is lost, yet for eating, though not for show, they are uninjured. Were there a proper demand for eating grapes from Portugal, the Muscats and Frontignacs would doubtless be cultivated there, when the poor man in this country would be able to have on his table as good grapes as the richest. The same may be said as to the pine-apple, which doubtless might be cultivated in Portugal at far less expense than in England, and steam would soon transport them to the remotest parts of Britain, nay of Europe. After a few more years of struggling, French wines will be as cheap in England as in France. Thus, then, the tendency of all things is to equalisation, and those who now produce every thing will ultimately also enjoy every thing. — *Cond.*

Bees are particularly fond of the flowers of the snowberry bush (Symphòria racemòsa *Ph.*): so I find, and I would, in consequence, recommend that numerous plants of this shrub be planted near to apiaries.

Crocuses of all Kinds, in abundance, should also be planted in the same situation. Their precocity will invite the bees abroad, when the air is chilly; and, if the crocuses grow at a distance, the bees will be unable to return to the hives. The crocuses are, besides, very ornamental, particularly many of the new sorts, and, by their early flowering, are cheering objects to the human eye. — *Wm. Godsall. Hereford, Oct.* 16. 1833.

I once made a list, not to be found just now, of the species of plants whose flowers I had observed bees to most frequent. I remember that the flowers of that interesting miniature shrub, the *S*èdum *p*opulifòlium, *Bot. Mag.* 211. (*A*nacámpseron *p*opulifòlia *Haworth*), were visited as much or more than the flowers of any other plant in my list. — *J. D.*

Bees are remarkably fond of the flowers of the *Cúscuta* sinénsis, now (Nov. 5.) profusely in bloom, and filling the air with its fragrance, in Mr. Malcolm's nursery, Kensington. — *Cond.*

ART. II. *Domestic Notices.*

ENGLAND.

PROFESSOR *Mirbel, of the Jardin des Plantes at Paris, and the French Government Architect, M. Rohault,* were on a mission to this country, in December last, for the purpose of procuring information on the construction of hot-houses, and on the different modes of heating them by hot water, steam, &c. Neither of these gentlemen know a word of English, and they only stayed in the country about a week. It is intended to renovate the hot-houses in the Jardin des Plantes, and to exhibit there different modes of construction, and of warming and ventilating.

Grant Thorburn, Esq., the celebrated seedsman of New York, the Lawrie Todd of Galt's novel of that name, arrived in London from New York, in the last week of October, and, after remaining a few weeks, will proceed to Scotland to visit his father (who is still alive, and ninety-two years of age), in the neighbourhood of Dalkeith. Mr. Thorburn proposes to return to London in February, and to embark again for America in March, taking with him an extensive assortment of trees, plants, and seeds. Mr. Thorburn assures us that he has seen no seed or plant establishment in or about London, not even excepting Chubb's splendid shop in Newgate Street, or the Bedford conservatories, at all to be compared to his own store in New York. Mr. Thorburn has also brought with him his autobiography, with the intention of publishing it in London. — *Cond.*

Sheffield Botanic Garden. — The subscription for this establishment is going on rapidly. Above 6000*l.* have been already subscribed, and as soon as the subscription amounts to 10,000*l.* land is to be purchased. The Duke of Devonshire and most of the nobility and gentry in the neighbourhood, patronise this undertaking. (*Weekly True Sun*, Nov. 3.)

A public Cemetery has recently been proposed for Manchester and its vicinity. By a prospectus which has been sent us, it appears that the capital is to be raised in shares of 10*l.* each. We wish the scheme success, and hope a sufficiently extensive piece of ground will be purchased, and that it will be laid out in an appropriate style. We say appropriate, because we have never yet seen a British cemetery appropriately laid out. The best is Liverpool, because the artist had only to follow the accidental features of the spot. In general the great fault is the employment of curved lines in the walks, which renders the cemetery like a pleasure ground, instead of giving it a distinctive character. In our forthcoming *Encyclopædia of Landscape-Gardening* we shall have a good deal to say on this subject. — *Cond.*

A Chalybeate Spring, of extraordinary strength, has lately been brought into notice at Dorton Park, the seat of C. S. Ricketts, Esq., near Brill, in Buckinghamshire. The situation is singularly hilly and romantic, and very little known to the public, having been, till lately, almost inaccessible for want of roads. Notwithstanding this, Dorton House is an immense structure, built in the time of Queen Elizabeth; and the park was laid out, or at least improved, in modern times, by the celebrated Brown. The present spirited proprietor is erecting a magnificent Grecian building as a bath room, from the designs of Mr. James Hakewill, and the grounds are laying out by our esteemed friend Mr. Main, who speaks with rapture of the situation; and, from the high opinion we have of his taste, we feel confident he will make the grounds among the finest of the kind in England. An account of the spa has been published in a pamphlet, sold by Whittaker and Co., entitled, *The History of the Dorton Chalybeate*, &c., by F. Knight, surgeon, Brill.

The True Service trees (of which there are two, the apple-fruited and the pear-fruited) in the Horticultural Society's gardens, have this year borne an abundant crop. We could wish such of our correspondents as have an opportunity, to look at these handsome trees, with a view to their more frequent introduction in pleasure grounds, and even orchards. The nurserymen might easily import plenty of plants of the true service from Paris, Bollwiller, or Tarascon. — *Cond.*

Of the Wheat of the Neighbourhood of Victoria, a Village in the Province of Caraccas, which Humboldt, in his *Personal Narrative*, p. 104—107., has noticed as being very productive, and as ripening, in Victoria, in 70 or 75 days from the sowing, Dr. Hamilton, 15. Oxford Place, Plymouth, has received seeds from Sir R. K. Porter, and distributed them in small quantities to various individuals in Britain. He has sent us 125 grains, which we have placed in hands that will properly apply them; and eventually, we trust, enable us to communicate the result. We are, however, altogether doubtful of "its coming to maturity" in this climate "in the singularly short space of time spoken of by Humboldt;" and as the grains "appear smaller, and of a darker colour," than those of our own wheats, we scarcely at all participate in Dr. Hamilton's sanguine expectations respecting it: still this is no reason why every experiment should not be tried. Dr. Hamilton, after soaking two grains for 24 hours, in a solution of oxalic acid, sowed them on August 26., and on August 29. he wrote — "They are now above ground, in a pot in one of my windows, and I am in the hope of their perfecting their crop in November." Dr. Hamilton conceives the possibility of three crops in a year being attained, "even in this cold country, in favourable seasons and situations."

ART. III. *Floricultural and Botanical Notices of new Plants, and of old Plants of Interest, supplementary to the latest Editions of the "Encyclopædia of Plants," and of the "Hortus Britannicus."*

Curtis's Botanical Magazine; each monthly Number containing eight plates; 3*s.* 6*d.* coloured, 3*s.* plain. Edited by Dr. Hooker, King's Professor of Botany in the University of Glasgow.

Edwards's Botanical Register; each monthly Number containing eight plates; 4*s.* coloured, 3*s.* plain. Edited by Dr. Lindley, F.R.S., Professor of Botany in the London University.

Sweet's British Flower-Garden; each monthly Number containing four plates; 3*s.* coloured, 2*s.* 3*d.* plain. Edited by David Don, Esq., Librarian to the Linnæan Society.

Loddiges's Botanical Cabinet; each monthly Number containing ten plates; 5*s.* coloured, 2*s.* 6*d.* partly coloured. Edited by Messrs. Loddiges.

Maund's Botanic Garden; each monthly Number containing one plate bearing figures of four plants; large paper, 1*s.* 6*d.*; small paper, 1*s.*; bordered edition, with the four plants on four separate plates, 2*s.* 6*d.* Edited by Benjamin Maund, Esq., F.L.S.

POLYPETALOUS DICOTYLEDONOUS PLANTS.

XXXVI. H*ypericíneæ*. *Hypéricum h*yssopifòlium *Vil.* is figured in the *Botanical Magazine* for November, t. 3277. It is showy in its numerous blossoms, and is hardy, peremial, and herbaceous. The plant is in the collection of the Edinburgh Botanic Garden.

LVII. M*yrtàceæ*.

2182. BEAUFO'RT*IA*.
Dampièri Cun. Dampier's ħ ⊔ or 2? my? Pk Dirk Hartog's Island C s.p Bot. mag. 3272
Possibly identical with B. carinàta of *Hort. Brit.*, No. 19656.

A rare and very interesting species; apparently a dwarf shrub, with many opposite or subverticillate branches. Leaves small, approaching to orbicular, closely placed, beautifully quaternate, dark green above, pale beneath; of a very aromatic taste. Flowers numerous, collected in whorls below the extremity of a branch. B. Dampièri, by the specimen figured, is a very elegant little plant. (*Bot. Mag.*, October.)

LXV. T*hymelèæ*.

87. PIMELE`A.
arenària *Cun.* sand-*inhabiting* ħ ⊔ pr 1? jl W New Zeal. 1827. C s.p Bot. mag. 3270
Closely allied to P. cinèrea *Br.*; approaches also near to P. nívea *Lab.*, as well as to P. pilòsa *Vahl.*

Mr. Allan Cunningham found "this interesting Pimelèa growing on the bare exposed sandy ridges at the entrance of the river Hokianga, on the western coast of the northern island of New Zealand, where he observed it in flower in September and October, 1826." It is figured from the Kew collection. "A small erect shrub, branched in a dichotomous manner. Leaves ovate, opposite, and decussate; glaucous green; flowers white, capitate, terminal, pure white, nearly erect, and large for the genus; anthers of a deep orange colour." (*Bot. Mag.*, October.)

longiflòra *Br.* long-flowered ♣ ⊔ or 4 jn W S. N. Holl. 1831? C s.p Bot. mag. 3281

"Introduced to our gardens by Mr. Fraser, from the southern shores of New Holland. It is beautiful, by reason of the comparatively large and globose heads of pure white blossoms, terminating the slender and wavy branches. Its flowering season, in the Glasgow Botanic Garden, is June." (*Bot Mag.*, November.)

LXXIII. *Rosàceæ* § *Spiræàceæ.*

1515. *S*PIRÆ'A.
13034 grandiflòra *B. C.* large-flowered ♣ or 4 jl Pk Kamtschatka 1827. Sk lt.l Bot. cab. 1988

Messrs. Loddiges raised this beautiful hardy shrub from seeds sent them from Kamtschatka, by M. Busch, in 1826. It resembles *S. s*alicifòlia, but is a much finer plant, and the flowers are double the size of those of *S. s*alicifòlia. It flourishes in the open ground, in light loamy soil, and flowers in July; may be increased by layers or cuttings. (*Bot. Cab.*, November.)

LXXVII. *Leguminòsæ.*

1249. CALLI'STACHYS.
retùsa *B. C.* retuse-*lvd.* ♣ ⊔ or 4 jn.au Y N. Holl. 1830? C s.p Bot. cab. 1983

About sixteen pretty yellow flowers and buds of flowers tip the spike of the branch figured, and it is stated that each branch (these are few and strong) of the plant produces a similar raceme of flowers. C. retùsa "is readily propagated by cuttings." (*Bot. Cab.*, November.)

2837. *A*CA'CIA § Capitàtæ.
†24667*b* gravèolens *Cun.* strong-scented ♣ ⊔ or 15 ap.jn Y V. D. L. C s.l.p Bot. mag. 3279

Introduced by Mr. Cunningham, from the margins of rivulets in the neighbourhood of Hobart Town, in Van Diemen's Land, where he observed it in flower and fruit one February. In the Kew and other British greenhouses it forms a shrub, with twiggy branches, which in May abound with globular showy heads of yellow flowers. In affinity it approaches to *A.* dodon*æifòlia.* (*Bot. Mag.*, November.)

LXXX. *Artocárpeæ.*

2900. *F*I'CUS § Ovatifòliæ: smooth above; pubescent beneath.
acuminàta *Ham.* pointed-*lvd.* ♣ ▭ or 6 ... W Silhet 1830? C p.l Bot. mag. 3282
*F. c*erasifórmis, Glasgow Botanic Garden.

It is a handsome species, remarkable for its solitary, peduculated, pendent, and tempting-looking fruit; somewhat resembling miniature oranges; the full green of its leaves, which are 4 to 9 in. long, and the brownness and abundance, of the pubescence of its branches, are also pleasing characters. (*Bot. Mag.*, November.)

LXXXIX. *R*e*sedàceæ*. Dr. Lindley has, in his recently published *Nixus Plantarum*, p. 12. (noticed in p. 608.), declared his theory of the structure of the flowers of the resedas untenable, and that the common view of their structure, advocated by Dr. Brown and Professor Henslow, is the correct one. For a statement of the difference of opinion previously extant on this question, see the notice of Professor Henslow's pamphlet, in p. 457.

*R*esèda odoràta var. crassifòlia. At Scone, in the summer of 1831, I took notice of and preserved a variety of *R.* odoràta, which some of my friends in that neighbourhood named, from the thickness of its leaves, crassifòlia. It is of a more robust habit than the common varieties are; its leaves are ovate, and very large, sometimes, upon young plants, 3 in. long, 2 in. wide, and, from some contraction at their margin, become concave; its flowers and their odour are those of the common variety. *R.* odoràta crassifòlia, from its robust habit, is peculiarly eligible for cultivating into what are called trees of mignonette; and so ornamental as these are, it is strange that so few possess them. To obtain them, I choose, in the beginning of August, those of the plants growing in the borders, which I think fittest for forming them, and divest each of them of all the stems but one leading one, which I tie to a stake; I then cut, with a trowel, at about 2½ in. from the stem, through all the plant's roots. I leave the plant standing for about ten days; by the end of which time it will have emitted fresh roots, and then transplant it into a 24-sized pot, in a mixture of rotted dung and sandy loam, and shade it from the sun for a few days. Subsequently I pinch off the spikes of flowers as they appear, until I have formed the plants as I desire; usually I do not permit them to flower until the following spring. I prefer to have the plants bushy from the bottom to the top, and not the stem bare in its lower part, as is the case with some trees of mignonette which I have in other places seen. A tree will, if it be prevented seeding, at least from ripening a considerable quantity of seeds, continue flowering for years. (*G. M. Elliott. Coul, Sept.* 18. 1833.)

For a notice of a bush of mignonette of the remarkable height, for a species usually so dwarf, of 10 ft. under Mr. J. Elles's culture, see p. 232.

The plot of ground apportioned to the collection of grasses in the Cambridge Botanic Garden used to abound in mignonette, which came up spontaneously every spring, and was allowed to grow between the plants of grass. In the years 1816 to 1818, I saw there several plants of mignonette very distinct from the rest, in their larger leaves, laxer racemes of flowers, smaller paler-coloured flowers, and larger germens or incipient seed-vessels. — *J. D.*

CXXIII. O*xalídeæ.*

1414. *O'*XALIS.
divérgens *Benth.* diverging ♉ △| or ½ jn.s W Mexico 1829? O p.l Bot. reg. 1620

A very pleasing species, figured with five scapes, each bearing an umbel of from three to five white flowers; its leaves are figured with four leaflets each, and described as possessing but three. It is easily cultivated under a frame which excludes all wet and very severe cold, and, like all the American species of the same habit, prefers the open soil to the confinement of a pot. Mr. Graham sent from Mexico bulbs of *O.* divérgens to the Horticultural Society. (*Bot. Reg.*, figured in October; text in November.)

CXXIX. P*olygàleæ.*

2063. *POLY'GALA* § *Clinclínia.*
18250*a* thesioìdes *W.* Thesium-like ꝛ ⌋ or ¾ jl B Valparaiso 1832. C p.s.l Sw. fl. gar. 2.s. 215

A pretty suffruticose species, raised by Mr. Knight, from seeds bought of Mr. Hugh Cuming. The plant appears to delight in a sandy soil. The upright stems are many; each is covered with heathlike leaves, and bears, at its tip only, a raceme of small but lovely blue flowers.

MONOPETALOUS DICOTYLEDONOUS PLANTS.

CLXX. E*ríceæ.*

1173. *ERI'CA.* § *Flowers long and cylindrical (Tubiflòræ).*
sórdida *B. C.* unbeautiful ♣ └┘ or 3 jn.jl R C. G. H. 1810. C s.p Bot. cab. 1973
Cannot be No. 9459. of *Hortus Britannicus*, as its flowers are figured as perfectly smooth.

Why this is named sórdida is not very evident: it is, it is true, not very fully or richly coloured; but its long tubular red blossoms, which are represented as numerously produced, render it, one would say, an ornamental species, although it may be less so than many others are. No information on it, additional to that exhibited in our line above, is supplied in the *Cabinet*, except that it "is of free growth." The leaves, by the figure, are small, rather dense, and arranged in four or more rows. (*Bot. Cab.*, October.)

ÆRI'CA § Ovatiflòræ.
hìspida *B. C.* hairy-*lvd.* ■ ⌴ or 1¼ ? jn.jl Pk C. G. H. 1792. C s.p Bot. cab. 1982

"It is a slender quick-growing kind, making many loose branches, upon which flowers are produced near their tops in June and July: it requires an airy green-house." (*Bot. Cab.*, November.)

CLXXXVI. *Compósitæ.*

2349. CHÆTANTHE'RA. (*Chaìtē*, a bristle, *anthēra*, an anther; bristles at base of anthers.)
†21549 serràta *R. & P.* sawed-*lvd.* £ △| or ½ jl.au Y Chile 1827. D p.l Sw. fl.gar. 2.s. 214
C. serràta *R. & P.*, D. Don; C. chilénsis *Dec.*; Perdícium chilénse *W.*; Prosèlia serràta *D. Don*; No. 21549. of *Hort. Brit.*, where *Desv.* is probably an error for *Dec.*

A dwarf perennial herbaceous plant, with a woody caudex and many decumbent slender leafy stems, 3 in. or 4 in. long, each of which bears, and at its tip, a rayed head of blossoms; the rays in colour a brilliant yellow. The plant is impatient of wet. Mr. Knight possesses it. (*Brit. Flower-Gard.*)

2373. ZI'NN*IA* 21630 élegans
2 coccínea *Lindl.* scarlet-*rayed* ○ spl 2 au.o S Mexico 1829. S co Bot. reg. 1294
3 ràdiis álbidis white-rayed ○ or 2 au.o W Brit. Gard. 1832. S co

The scarlet-flowered variety was figured, in 1830, in the *Bot. Reg.*, where it was stated that only a plant or two were known to be in British collections, which did not promise to seed freely. The variety has, however, survived, or been again introduced. Several plants of it were in bloom in the Horticultural Society's Garden on August 13. 1833.

The white-rayed variety is possessed by T. Rivers and Son, nurserymen, Sawbridgeworth, Herts, and doubtless is in other collections.

CC. P*olemoniàceæ.*

473. COLLO'MIA.
coccínea *Leh.* scarlet-*flwd.* ○ or 1 jl R Chile 1832. S co Bot. reg. 1622
C. laterítia *D. Don* in Sw. Fl. Gar. 2. s. 206. (*Gard. Mag.*, vol. ix. p. 620.)

A notice of this species is quoted into p. 620.; which see. In the *Bot. Reg.* for October, t. 1622., a figure and description of it are published with the name of C. coccínea; which name is there shown to have been published for it at Hamburgh, previously to Mr. Don's application of the name C. laterítia. The flowers of collomias expand more fully under a cloudy sky than in bright sunshine: the plants, nevertheless, like warm weather. Consistently with this their habit, Dr. Lindley advises two sowings of their seeds; one in early spring, the other a month or two afterwards. If the summer prove hot and dry, the plants from the latter sowing will flower more satisfactorily in autumn, than those from the former one will in the dog-days.

Of pretty and remarkable Species of Plants of the Order P*olemoniàceæ*, the London Horticultural Society has, in the spring of the present year (1833), received, by seeds, a considerable number, from Mr. David Douglas, who had collected them in California; few or none of them had been previously introduced to Britain. Plants of several of the species have been, this year, raised in the Society's Garden, and have there flowered this autumn, although, possibly, too late to favour the hope of a plenteous crop of ripe seeds being this year derived from them. Some of the species belong to genera of which certain species are already in British gardens; as the genera Gíli*a* and Collòmia. Mr. Bentham has described the generic and specific characters of all of them, in a communication appended, in the *Botanical Register* for October, to the description of Collòmia coccínea of Lehmann, t. 1622.; and in doing this has also revised the characters of the genera and species previously known and cultivated. The names of the genera and species are: —

498*a*. **HUGE'L*IA*** Benth. (In honour of Baron *Charles de Hügel* of Vienna. Hugèl*ia* of Reichenbach is Didìscus *Dec.*) 5. 1. P*olemoniàceæ*. Sp. 4.— Differs from Gil*ia* in habit and anthers.
densifòlia *Benth.* crowded-lvd. ○ ? △ ? or 1 ? ... B California 1833. S co
elongàta *Benth.* lengthened-*branched* ○ ? △ ? or 2 ? ... Dp.B California 1833. S co
virgàta *Benth.* branchy ○ ? △ ? or 2 ? ... Dp.B California 1833. S co
lùtea *Benth.* yellow-*flwd.* ○ ? △ ? or 2 ? ... Y California 1833. S co

[498*b*. **LINA'NTHUS** *Benth.* (*Linon*, flax, *anthos*, flower; from the resemblance of the flower to that of several species of *L*inum.) 5. 1. P*olemoniàceæ*. Sp. 1.
dichótomus *Benth.* forked-*branched* ○ or 1½ ? ... Pk California 1833. S co
Flowers solitary in the forks; towards the tips of the branches, numerous and clustered; corolla of the size and form, and nearly of the colour, of that of *L*inum suffruticòsum.

498*c* **LEPTOSI'PHON** *Benth.* (*Leptos*, slender, *siphōn*, a tube; slenderness of the tube of the corolla.) 5. 1. P*olemoniàceæ*. Sp. 5.—
Leaves opposite, sessile, palmately cut. Flowers in dense corymbose heads.
grandiflòrus *Benth.* large-flowered ○ or 1½? au.o B.Go California 1833. S co
*a*ndrosàceus *Benth.* Androsace-like ○ or 1 ? au.o Dp.B.Go California 1833. S co
Corolla smaller, and more intensely coloured than in L. grandiflòrus.
lùteus *Benth.* yellow-*flwd.* ○ or 1½ ? au.o Dp.Y California 1833. S co
2 pale yellow-flowered ○ or 1½ ? au.o Pa.Y California 1833. S co
parviflòrus *Benth.* small-flowered ○ or 1½ ? au.o Y California 1833. S co
? densiflòrus *Benth.* crowded-flowered ○ or 1½ ? au.o Pa.P ? California 1833. S co
Mr. Bentham suspects that the last-named species may possibly be the type of a genus intermediate between Leptosiphon and the Gìli*æ* of the section Dactylophýllum.

498*d*. **FE'NZL*IA*** *Benth.* (In honour of *Dr. Fenzl* of Vienna, now publishing a monograph of *A*lsìneæ.) 5. 1. P*olemoniàceæ*. Sp. 1.
dianthiflòra *Benth.* Dianthus-flowered △ ? ○ ? or ½ ... P.Y California 1833. S co
The leaves are linear, entire, opposite. Flowers peduncled, 1—3. Corolla almost an inch long, purplish, but yellow in the lower part.

499. **GI'LI*A*** Cav. (*P. S. Gilio*, a Spanish botanist.) 5. 1. P*olemoniàceæ*. Sp. 14.—

Sect. 1. Dactylophy'llum. Lower leaves opposite, all sessile and palmately cut. Flowers solitary, on long footstalks. Corolla's tube very short, its limb spreading. Perhaps the species of this section are properly a genus. — *Benth.*

*l*iniflòra *Benth.* Linum-flowered ○ ? pr ½ ? ... W ? California 1833. S s.l
The flowers, in form and size, resemble those of *L*inum tenuiflòrum.
*ph*arnaceöìdes Benth. Pharnaceum-like ○ ? pr ½ ... ... California 1833. S s.l
Flower half the size of that of G. *l*iniflòra.
pusílla *Benth.* dwarf ○ ? cu ½ ... ... Chile 1833. S s.l
It has the habit of Arenària tenuifòlia; and its flower is but half the size of that of G. *ph*arnaceöìdes.

Sect. 2. Ipomo'psis. Leaves alternate, pinnately cut or pinnatifid. Flowers solitary or associated. The corolla's tube lengthened and protruded far beyond the calyx.

†4265 coronopifòlia *Pers.* Coronopus-leaved £ Ω spl 2½ jl.s S Carolina 1726. C l.p Ex. bot. 1. 13.
Persoon's Syn. 1. 187. Ipomópsis élegans Sm. exot. bot. 1. 23. t. 13. [and, according to *Hort. Brit.*, No. 4265, *Cántua* coronopifòlia *W.*]
pulchélla *Dou.* pretty £ Ω spl. 2½ jl.s S N.W. Amer. 1826. C l.p Bot. reg. 1281
G. pulchélla *Douglas MSS.*, Ipomópsis élegans *Lind.* bot. reg. 1281. [and, according to *Hort. Brit.*, p. 471., Ipomópsis élegans *Mx.*]
tenuiflòra *Benth.* slender-*tubed* ○ ? or 2 ? ... B California 1833. S s.l
arenària *Benth.* sand-*inhabiting* ○ ? or 1 ? ... B California 1833. S s.l
crassifòlia *Benth.* thick-leaved ○ ? or 2 ? ... Ysh Chile 1832. S s.l

Sect. 3. Eugi'lia. Leaves alternate, pinnately cut or pinnatifid. Flowers more or less strictly solitary, or more usually grouped in heads. Corolla's tube as short as, or shorter than, the calyx.

†4266 inconspícua *Dou.* inconspicuous ○ or cu 2 au.n B N.W. Amer. 1793. S co Bot. mag. 2883
Ipomópsis inconspícua Sm. exot. bot. [and, according to *Hort. Brit.*, No. 4266., Gìli*a* parviflòra *Spr.*, and *Cántua* parviflòra *Ph.*]
trícolor *Benth.* three-coloured-*flwd.* ○ ? or 2 ? ... Y.P California 1833. S co
[1831. S co Fl. per. 123
†28891 laciniàta *R. & P.* cut-*lvd.* ○ cu ½ jl Pk Chile, Peru, California
multicaúlis *Benth.* many-stemmed ○ ? or 2 ? ... B California 1833. S co
*a*chille*æfòlia* Benth. Achillea-leaved ○ ? or 2 ? au.n B California 1833. S co
[Bot. mag. 2698., Bot. reg. 1170
†4267 capitàta *Dou.* headed-*inflorescence* ○ or 2½ jl.n B N.W. Amer. 1826. S co
[2 corólla álba white-corollaed ○ or 2 jl.n W Gardens 1829. S co]

499*a*. **ÆGO'CHLOA.** (*Aix*, *aigos*, a goat, *chloa*, a green herb; herbage of some of the species fetid.) 5. 1. P*olemoniàceæ*. Sp. 6.
Herbaceous plants, most of them with viscous and fetid herbage. Leaves pinnately cut, the segments acute and cut. Flowers in dense heads, supported by multifid spiny bracteas.
[1833. S ...
intertéxta *Benth.* interwoven [what ?] ○ ? cu 1½ ? ... B ? California and N.W. Am.
cotulæfòlia *Benth.* Cotula-leaved ○ ? cu 2 ? ... B ? California 1833. S ...
pubéscens *Benth.* downy-*herbaged* ○ ? cu 1 ? ... B ? California 1833. S ...
[Bot. mag. 2977
†28890 púngens *Benth.* prickly-*lvd.* ○ cu 1½ ju.s B California 1826. S s.l
Gìli*a* púngens *Douglas*, Hook. Bot. Mag. 2977., *Hort. Brit.*, 28890.
*e*ryngiöìdes *Benth.* Eryngium-like ○ ? cu ... ... Chile 1833. S ...
Gìli*a e*ryngiöìdes *Bot. Zeit.* 1833. 1. 122., G. mucronàta *Lehm.* del. sem. Hort. Hamburgh, 1832.
*a*tractyliöìdes *Benth.* Atractylis-like ○ ? cu ... ... B ? California 1833. S ...
Has the habit of *A*tráctylis hùmilis.

473. COLLO'MIA *Nut.* (*Kolla*, glue; seeds, when moistened, externally glutinous.) 5. 1.
Polemoniàceæ. Sp. 7.— [Bot. mag. 2895., Bot. reg. 1347
†28069 heterophýlla *Hook.* various-leaved ○ or ½ jn.s Pk N. W. Amer. 1826. S co
[Bot. reg. 1622
coccínea *Leh.* scarlet-*flwd.* ○ or 1½ jn.n R Chile 1832. S co
C. coccínea *Lehmann* delect. sem. Hort. Hamburg. 1832; *Bentham* in Bot. Reg. t. 1622.; C. lateritia *D. Don* in Sw. fl. gar. 2. s. 206. (Oct. 1833.)
[Bot. reg. 1174., Bot. mag. 2894
†28070 grandiflòra *Dou.* large-flowered ○ or 2 jn.o Saf N.W. Amer. 1826. S co
[Bot. reg. 1166, Bot. mag. 2893
†3924 lineàris *Nut.* linear-*lvd.* ○ or 1 jn.o R N.W. Amer. 1826. S co
giliöìdes Benth. Gilia-like ○ ? ⚹ or ? ... Pk California 1833. S co
Its corolla resembles that of C. grácilis.
glutinòsa *Benth.* glutinous [? herbage] ○ ? ⚹ or ? ... ... California 1833. S co
Its corolla resembles that of C. grácilis.
[Chile 1826. S co Bot. mag. 2924
†28086 grácilis *Dou.* slender [? what] ○ or ½ jn.s Pk N.W. Amer., California,

Here ends a catalogue of the species which Mr. Bentham has described in the *Botanical Register*.

An additional species of Collòmia has, a botanical friend has informed us, been recently published in Hooker's *Journal of Botany:* it is named —

Cavanillèsii Hook. & A. Cavanilles's. It is closely related to C. coccínea above, and is the *Phlóx* lineàris of Cavanilles's *Figures* (*Icones*). Whether the species has been yet seen alive in Britain we are not aware.

CCV. *Oleàceæ.*

41. *SYRI'NGA.*
290*a* Josikæ'*a* Jac. Josika's ♣ or 8 my.jn Dp.Li Germany 1833. Sk co Bot. mag. 3278

An additional and hardy species of lilac, for the enrichment and decoration of our shrubberies. It is, perhaps, scarcely so beautiful as those already in cultivation. It was discovered in Transylvania, by the Baroness von Josika, born Countess Czaki, and has been, by Jacquin, named in compliment to that distinguished lady. *S.* Josikæ'*a* is an upright shrub, with spreading branches and purple twigs. Its leaves are elliptic lanceolate, 3 in. long, and 1½ in. broad, shining and lurid green above, beneath white, in the manner of those of the balsam poplar. The panicles of corollas are terminal, erect. Each corolla is about ½ in. long. of a deep lilac colour. "Dr. Graham, in 1833, received the plant, at the Botanic Garden of Edinburgh, from Mr. Booth of Hamburgh." Besides this additional information on the *S.* Josikæ'*a*, Dr. Hooker incidentally communicates that

The common lilac (*S.* vulgàris), which has hitherto been considered almost exclusively of Persian origin, is stated, by Dr. Heuffel, to adorn, with its copious blossoms, the inaccessible chalky precipices of the Cverna Valley and Mount Domaglett in Hungary, as well as the whole group of rocks along the Danube, at the military boundaries of Moldowa, Szaszka, Csiklova, and Krassova. (*Bot. Mag.*, Nov.)

CCVII. *Primulàceæ.*

457. *LYSIMA'CHIA.*
3842*a* azórica *Horn?* Azorian £ △ or ½ jn Y Azores? 1831? D Lp Bot. mag. 3273

"This extremely pretty *Lysimàchia* was received at the Botanic Garden, Glasgow, from that of Copenhagen. It is cultivated in a pot, and treated as an alpine plant, that is, protected from the fickleness of our winters, and kept in a cool shady situation in the summer; and, in the month of June, a pot filled with this little plant is quite a beautiful object; for the peduncles are so long as to elevate the bright, and comparatively large, yellow flowers above the tops of the stems and the delicate pale green foliage." (*Bot. Mag.*, October.)

CCXI. *Scrophularíneæ. Anther-bearing stamens two.*

65. CALCEOLA'RIA.
577* séssilis *R. & P.* sessile-*lvd.* ⚲ ⌋ or 1½ s Y Valparaiso 1832. C s.p Bot. reg. 1628

Raised by the Hon. and Rev. W. Herbert, from seeds imported by Mr. Hugh Cuming. Its blossoms are yellow, and, though not large, very numerous, disposed in axillary and terminal cymes; it is always a neat-looking species, and is very beautiful when growing vigorously in the open border. Near C. integrifòlia, but has all its leaves hoary beneath, and its upper leaves sessile, with triangular bases. (*Bot. Reg.*, November.)

Scrophularíneæ. § Anther-bearing stamens four.

1787. **TORE'N*IA*.**

†29293 scàbra *Grah.* rough-*lvd.* ■ ⊔ or 3 jn.aut Pa.B Moreton Bay 1830. C ri.l Bot. mag. 3104 Bot. Cab, 1990., whence we have here given the details more accurately than in the *Add. Sup.*

In a warm green-house "it grows rapidly, and forms a good-sized bush, with many succulent branches, each producing plenty of flowers [rather large, and of a pale blue], which continue successively from the month of June till autumn." (*Bot. Cab.*, November.)

Anthocércis viscòsa is figured in the *Botanical Register* for November, t. 1624. It is a handsome evergreen shrub, with dark green neat leaves, and rather numerous large white starry flowers, produced in May and June. It is liable to injury from over-watering; it is easily propagated by cuttings. Figured from Lowe's nursery, Clapton. Dr. Lindley refers this genus to Scrophularíneæ. Another species, A littòrea, has flowered in Ireland; see p. 750.

CCXIII. S*olàneæ.*

489. *PETU'NIA.*

phœnícea *D. Don* purple-*flwd.* ■ ⊔ spl. 2½ jn.n C.P Buen. Ayres 1831. C s.l Bot.reg.1626
or ○ spl. ⚹ or 5 jn.n C.P Buen. Ayres 1831. S co

Synonymes: Salpiglóssis integrifòlia *Hooker* in Bot. Mag., 3113.; Loudon's *Add. Supp.* to *Hort. Brit.*, No. 29216.

Petùnia phœnícea *D. Don*, incidentally, in the text descriptive of Nierembérg*ia* grácilis, in Sweet's *British Flower-Garden* for December, 1832, t. 172.

Nierembérg*ia* phœnícea *D. Don*, with a figure in Sw. Br. Fl. Gard., June, 1833, t. 193.

Petùnia *v*iolàcea *Lindl.* in Bot. Reg., November, 1833, t. 1626: but where the specific epithet is doubtless a mere mistake, as he quotes Sw. Fl. Gard. t. 193.; intending, no doubt, to adopt Mr. Don's specific name, although no such epithet as *v*iolàcea has been, by Mr. Don, applied in that work to the plant in question.

The name of this lovely plant (see p. 561.) may now be considered as settled: *Petùnia* phœnícea. No botanist has mentioned the apparent imperfectness of the stamens of this plant. Dr. Lindley states that "it forces well."

CCXX. V*erbenàceæ.*

1749. ***V*ERBE'NA.**

radìcans *Hook.* rooting ♃ △| or ½ jn.s Li Chile 1832. C l.p Maund, bot. gard. 422

Already registered, with details, in p. 113., in the valuable list of newly introduced plants, communicated by Mr. Cameron. Mr. Maund, who, in his *Botanic Garden* for October, has figured this species, states that

"It is a prostrate plant, spreading pretty freely over the surface of the parterre. . . . The stems protrude young roots; and, if the former be fastened down, they will supply an abundance of distinct plants. Pot a few young ones in August, and keep them in a cold frame during winter. Turn them out, in April, into a light rich soil and warm aspect, and they will quickly become ornamental." Mr. Frost speaks of species of a similar habit, termed (in p. 560.) "*V*erbèna Sabìn*i*.

MONOCOTYLEDONOUS PLANTS.

CCXXXVIII. *Amarylli*deæ.

975. **HABRA'NTHUS.**

miniàtus *D. Don* red-*flwd.* ♉ △| or 1 jl R Chile 1832. O lt.s Sw.fl.gar.2.s.213

A distinct species, with an umbel, according to the figure, of four flowers, smaller than those of H. *r*òseus. The species is in Colville's nursery. "It requires a mixture of vegetable earth and sand, and will doubtless, like most bulbous plants from the same country, succeed well in the open air, in a warm sheltered border." (*British Flower-Garden*, November.)

CCXL. *Orchídeæ § Neottièæ.*

2495*a*. **SAUROGLO'SSUM** *Lindl.* ("So named from *saura*, a lizard [and *glōssa*, a tongue]; because many of the parts of this curious plant may be likened to the tongue of some reptile: the leaves may be compared to the tongues of antediluvian saurians, and the sepals to those of modern species.") Lizard's tongue. 20. 1.

elàtum *Lindl.* tall ⚥ ⊠ pr 1½ mr W.Ysh Brazil 1832 D s.p Bot. reg. 1618

It bears a good deal of resemblance to Spiránthes grandiflòra and Peléxia spiranthöìdes; "its structure is, however, distinctly different from that of any plant of any published genus." The plant figured was derived from the collection of Mrs. Arnold Harrison. It is a native of the woods of Brazil, and inhabits soil, not trees. The flowering scape is well-nigh 2 ft. high, and of this portion the flowers occupy half; they are placed closely together, and their white labellums contrast pleasingly with the green sepals and bracteas; both, after the flowering season, seem to become of a brown colour, and the flowers of the lower part of the spike to be in this case, before those of the upper part of the spike have become expanded: this must increase the plant's interestingness. Dr. Lindley appends to his description of this plant the character of several related genera, which he previously had ascertained and described. (*Bot. Reg.*, October.)

Orchídeæ § Vándeæ.

2540. ONCI'DIUM.
pulchéllum *B. C.* fair £ ⊠ or 2? mr W Demerara 1828? D p.r.w Bot. cab. 1984

"We have had it several years, but it was not strong enough to bloom till March last." The panicle of flowers figured forms an elegant lovely picture: the flowers are white, rather large, and have a tint of pink in the centre. "It continued in flower nearly two months, and has a delicious fragrance. We have not yet been able to increase it." (*Bot. Cab.*, Nov.)

2546. GONGO'R*A*.
maculàta *Lindl.* spotted-*flwd.* £ ⊠ or 2½ my Y.spot Demerara 1832. D p.r.w Bot. reg. 1616

"This most curious species" is published from the collection of Richard Harrison, at Liverpool, in whose hot-house it produced its flowers in bunches, 2½ ft. long, and these hung down most gracefully from the pot in which the plant was suspended. The flowering specimen figured is very beautiful: for, besides the remarkable form of the flowers, they are numerous, and handsome, in being of a rich yellow or yolk of egg colour, spotted, and striped with purple, and are not small. (*Bot. Reg.*, October.)

Orchídeæ § *Epidéndreæ.*

2554. EPIDE'NDRUM.
22730*b* oncidiöìdes *Lindl.* Oncidium-like £ ⊠ fra 3 jn Y.Br S. Amer. 1823? D p.r.w Bot. reg. 1623

A noble species, which, according to a specimen communicated by R. Harrison, Esq., of Liverpool, to Dr. Lindley, produces a leaf near 2 ft. long, and a panicle of flowers fully 3 ft. long. It is nearly allied to E. odoratíssimum, with which it agrees in its delicious and powerful fragrance. When the specimen was unpacked, the whole air of the room became perfumed, as if a basketful of violets and roses had been scattered over the floor. . . . It is a most interesting species; for it is not only handsome, singular, and fragrant, but its flowers are very durable, remaining in perfection for at least a fortnight." (*Bot. Reg.*, November.)

2558. BLE'T*IA*.
grácilis *B. C.* slender ✱ ⊠ or 1 jn Gsh.S.R Mexico 1830. O p.r.w Bot. cab. 1977

"This is believed to be a native of Mexico. It is exceedingly slender in all its proportions; the leaves are of a purplish red colour, and the scape is about 1 ft. in height, producing two or three flowers;" perhaps it will produce many more in a raceme, by invigorating culture. We, on the present occasion, take our note from a partly coloured copy of the *Cabinet;* and, judging from the figure in it the flowers of this species are handsome. Their ground colour seems a yellow green, which is marked in one part with scarlet, in another with red; their form, too, seems elegant. (*Bot. Cab.*, October.)

LEPTO'TES *Lindl.* (*Leptos*, slender; leaves) 20. 1. *Orchídeæ* § *Epidéndreæ.*
bícolor *Lindl.* two-cld.-*flwd.* £ ⊠ or ½ ap W.R Brazil 1831? D lt.potsh.moss Bot. reg. 1625

A pretty little plant, from the Organ Mountains of Brazil. The specimen figured flowered in the collection of Mrs. A. Harrison. L. bícolor has been known to thrive planted among broken potsherds, decayed vegetable matter, and moss. The genus Leptòtes is closer in affinity to

Tetramìcra *Lindl.* "This genus, founded on the Cymbídium rígidum of Willdenow, is the Brasavòla élegans of the *Botanical Magazine*, t. 3098. ;

the true B. élegans being a plant which, we believe, has not yet been introduced." (*Bot. Reg.*, November.)

CCLI. *Liliàceæ.*

1016. *LI'LIUM* 8408 *Mártagon.*
3 sépalis plúrimis double-flowered ♉ △ or 3 jn.au P Gardens ... O co
4 sépalis álbis white-sepaled ♉ △ or 2½ jn.au W Germany ... O co Maund.bot.gar.426

"The Dutch, who excel in the cultivation of all sorts of bulbs, have not been idle in regard to the *Lílium Mártagon.* They have raised seedling varieties of various shades of colour, some single and some double, but still none possessing any peculiar attractions; which may account for very few being met with in English gardens." (*Maund's Bot. Gard.*, November.)

018. FRITILLA'RIA.
449a mìnor *Led.* smaller ♉ △ or 1½ my P.spot Altai mountains 1830. O p.l Bot. mag. 3280
F. meleagröìdes *Patrin* in Schult. Syst. Veg. 7. 395. As No. 8449. in *Hort. Brit.* is on Fischer's, not Patrin's, authority, we cannot tell whether F. mìnor *Led.* be the same as that or not.

Like every kind of Fritillària, F. mìnor is ornamental, interesting, and desirable. As its flowers are smaller than those of some kinds, it is less showy than they. In the specimen figured, the stem is terminated by three pendulous flowers. F. mìnor was obtained by D. Falconar, Esq., of Carlowrie, near Edinburgh, from Mr. Goldie, who brought it from Russia. Professor Ledebour discovered it in pastures of the Altai Mountains. (*Bot. Mag.*, November.)

Art. IV. *Retrospective Criticism.*

J. W. L.'s Notes on Dr. Lindley's Lectures. (p. 436.) — A selfish desire for fame may at times operate upon some of the correspondents of the Gardener's Magazine, but selfishness, in its worst form, cannot be laid to their charge. The very existence of a publication, composed chiefly of communications from men of the same profession, freely giving an account of the results of their experiments, &c., for the purpose of instructing or warning their brethren, affords us a beautiful practical developement of that great moral truth, that man does not and ought not to live for himself; that he is merely a member of the community of mankind; and, consequently, that the interests and happiness of that community are intimately blended and inseparably connected with his own. Hoping that these are something like the sentiments of my brother gardeners, and trusting to your indulgence, I beg leave to make a few remarks upon the influence of light and air on vegetation, suggested chiefly by reading J. W. L.'s notes on Dr. Lindley's valuable lecture upon climate. (p. 436.)

With regard to light, there is one very important truth asserted, "that too much and too little light are alike injurious to plants." I feel convinced of the powerful agency of light, acting as a stimulus to the exertion of the vital principle in vegetable bodies, and of the great importance of atmospheric air, and admit, at the same time, that the want of air, and the presence of too much light, are as injurious as they are represented to be; but, nevertheless, my present impression is, that these results are not produced exactly by the causes assigned, but that it is stretching the point too far to say that plants die in the one case for "want of food," and in the other from "feeding too fast." (See Notes, p. 437.)

That carbonic acid gas is inhaled from the atmosphere during the day, and, being decomposed by the agency of light, becomes partly assimilated to the plant, I do not deny: for although the application of carbonic acid gas is prejudicial to plants vegetating in the shade, it, at least, is not injurious when they are exposed to the influence of light. Having filled a fine glass bottle with carbonic acid gas, and put in it some plants in a vegetating state, and prevented all access of atmospheric air, I exposed the bottle to the influence of the sun's rays; and, upon examination some hours afterwards, I found the plants healthy, and the artificial atmosphere in which they were put deprived of its destructive quality to animal life; which purification must have been effected by the inhalation, and consequent decomposition, of carbonic acid by the plants; or it might be partly owing to the expulsion of the oxygen that was contained in the plants. Allowing, then, that plants do derive part of their carbon from the atmosphere, in some instances perhaps the greater part, it still remains to be proved that from it plants generally "absorb the carbon necessary for their support." I can scarcely think that these are the sentiments of the learned professor, although the opinion is still further corroborated by what follows; viz. "If you deprive them (plants) of atmospheric air, they languish, their leaves lose their colour, their flowers their scent, and their fruit its flavour, till, by degrees, they pine away and die at last absolutely for want of food." (p. 437.) Now this appears to me to possess a little of that absurdity which would be laid to my charge were I to affirm that the little animal, that had been permitted to fill its belly to satiety, died for want of food, when cruelly confined in the exhausted receiver of an air-pump.

It would not be requisite to advert to these things, but for the great difference of opinion which exists among our physiological writers; one class looking upon the leaves of plants as so many robbers, wasting, by their exhalations, the nourishment which the stem ought to receive; while others are so convinced of their absorbing and elaborating properties, that they forget their exhaling ones; and, not content with making them lungs, they have elevated them a degree farther, and made them the mouths by which plants absorb their nourishment.

The most common observer must have remarked the rapid progress of vegetable developement, when the plant is in a green succulent state, and the comparatively small progress it makes after induration has commenced; but we cannot ascribe this effect to the "absorption of carbon from the atmosphere;" and, besides, we find that light and a free current of air are unfavourable; while moisture, shade, and a certain quantity of heat are the most favourable circumstances for elongation of stem. This tends to prove something else than that plants derive their whole support from the atmosphere, or die for want of food when deprived of it.

If plants derived from the atmosphere the carbon necessary for their support, by the agency of light, then we might naturally conclude that their growth would be greatest during the day; but the result of a great many observations convinces me that the plants grow most, and fruit swells most, during the night; when, instead of inhaling, plants exhale carbonic acid gas. This is practically observable in hot-houses, and any person may be convinced of its truth by attending, night and morning, to the growth of any quick-growing plant. I found, for instance, that, upon an average, a plant of Erythrìna Crísta gálli grew three times as much in the night as during the day; the fruit of melons, that increased, upon an average, 1 in. in circumference during the night, grew so little during the day, that seldom any advance was perceivable, with the exception of one day, when the atmosphere was cloudy and had those appearances which forebode a thunder storm; cucumbers, shaded by their own leaves, grew nearly as much during the day as at night; but some, which I exposed fully to the light, did not grow in length above half as much during the day as during the night. These results may be accounted for by the diminution of transpiration and the inhalation of oxygen gas, which, being necessary to the existence of animal life, and essential to the germination of the seed, seems likewise to exert a powerful agency it the after-processes of vegetation.

Gardeners seem to be aware of this; as I have known them, when they desired a particularly heavy fruit, such as a melon, a pine, &c., about which they desired to make a boast, keep the plant in a close moist atmosphere, and shade it from bright sunshine; knowing that, by admitting a current of air and the full glare of sunshine, the watery juices of the fruit would be perspired, and a chemical change sooner produced upon its substances; and that, consequently, though it would ripen sooner, be better-coloured, and much better-flavoured, yet it would be diminished in its weight. I do not mention these things for the purpose of undervaluing light and air; I am quite convinced of their extreme importance; but, at the same time, I believe that this importance does not, in general, consist so much in giving food to the plant, as in acting, along with heat, as a stimulant of the vital principle, and in changing the nature of and assimilating the substances which the plant has already absorbed, and rendering them fit for its nourishment and support, in a manner something similar to the changes that are produced upon our food by the organs of digestion, and upon our blood by its passage through the lungs. That plants, when exposed to too much light, die from over-excitement, is true; but I am not yet convinced of the propriety of saying that it is from their "feeding too fast." It is occasioned by too great perspiration, and by a too rapid decomposition of the carbonic acid which is contained in the plant, and, consequently, too great an expulsion of oxygen; but I should hardly think from too great an absorption of carbon from the atmosphere, as the appearance of the leaves would indicate that they had very little of that power remaining. The gardener who has observed the change effected by removing a tender plant from partial shade into bright sunshine will judge for himself.

The Opinions of Mr. Gorrie and Mr. Elles on transplanting Trees and striking Cuttings.—I may have said too much upon the exhaling properties of plants; but it seems necessary, because the overlooking of this circumstance has led to much difference of opinion. As an evidence, I might refer to the sentiments of Mr. Gorrie and Mr. Elles respecting the management of transplanted trees. I mention these gentlemen with the greatest deference, as they are both a high honour to the profession. Mr. Gorrie (Vol. VI. p. 44.) advocates the thinning out of the top of a transplanted tree, to make it proportionable to the roots; Mr. Elles (in the same volume, p. 546.) says "touch not a twig nor a leaf." Both allude to the practice of striking cuttings, in support of their opinions. Mr. Gorrie takes off a few of the leaves, as an excess of foliage exhausts the sap in the shoot; Mr. Elles and N. H. (Vol. VI. p. 413.) are convinced of the impropriety of taking off a single leaf. Now, whose opinion am I to follow? None of them, I reply, before examining the subject for myself. Let us attend to the process of striking cuttings, as illustrative of the principle involved in the management of transplanted trees. We leave the top of the tree exposed to heat, light, and air. Do we thus act towards our cuttings? No. Is not the first thing we attend to the preventing of perspiration and the expulsion of oxygen, by keeping them from the full influence of the sun and air, by artificial shading, and covering them with a frame, or a hand or a bell glass? The number of leaves is of relative importance; the fewer that are left, the less will be the exhaling or perspiring surface; the greater their number, the greater may be the success, but that success will wholly depend upon the greater care bestowed in preventing evaporation from the leaves, enabling them to inhale the greatest quantity of oxygen, and to exhale the least, by a slow decomposition of their carbonic acid gas. We do not expose them to sun and air before they have obtained roots; and when we pot them off, we again shade them a little before the roots are established in their new quarters. Mr. Elles speaks of the absurdity of taking off a leaf of a celery plant, &c., when transplanted; but he has not told us that the scientific gardener likewise shades his transplanted young celery plants. We cannot act thus with transplanted trees. We have got no glasses or cloths to spare for them. In a healthy tree, there is a beautiful harmony between the roots and the branches; in a transplanted tree, that harmony has, in some measure, been destroyed. Leave the top as it was before transplanting, and you leave the same exhaling surface: but how, I would ask, can the now mutilated and deranged state of the roots absorb sufficient moisture to support this? Observation may tell us. When a cloudy wet season succeeds, the success may be ample enough; but when the transplanting is followed by a season quite the reverse, do not the stunted appearance of the tree, and the small sickly leaf it carries for years, notwithstanding the assistance of the water-cart, afford a proof that Mr. Gorrie is right in advocating, not a decapitation, but a partial thinning out of the young spray of the top, to proportion the exhaling and elaborating organs of the plant to its power of absorption by the roots; knowing that, although branches produce roots, roots likewise produce branches, and that all parts of a plant, while they act, are also acted upon, being relative and correlative to each other?

As, in writing these remarks, no offence to any one is intended, I hope none will be taken. Any errors which they contain, I hope will be attributed to my ignorance, but not to any desire to continue in that ignorance; as I shall gladly receive instruction from any quarter, and I shall feel much gratified if these remarks should prove the means of inciting some more competent individual than myself to throw additional light upon the subject. Some may deem it very presumptuous for one in my circumstances to give an opinion at all upon such subjects; but as I look forward to a period when a decision in such matters may be required of me, I consider it better to investigate the subject beforehand, than to have to learn the best methods of practice at my employer's expense, and at the same time to run the hazard of incurring from him the epithet of being a self-sufficient ignorant gardener. I am, Sir, yours, &c. — *Scientiæ et Justitiæ Amator. Staffordshire, Oct.* 2. 1833.

Mr. Smith and Mr. Laundy (p. 623.), *&c.* — We have received a long rejoinder by Mr. Smith; but, the subject being of little or no interest to the general reader, we only notice that part of Mr. Smith's letter in which he states that Mr. H. Laundy "claims the honour" of being the author of the criticisms on the Epsom nursery, signed Aristides, Vol. VI. p. 357. This we have great pleasure in making known to our readers, in order to clear every other person from the imputation of having written them. — *Cond.*

Kneller Hall. (p. 523.) — I believe there is some little mistake about Mr. C. Calvert's house at Witton: its name is Kneller Hall; having been built by Sir Godfrey Kneller, the painter. Witton Dean is a small house on the right hand, farther on, belonging to Mr. Gosling of Witton Place, and is said to be the house in which the Duke of Argyle kept his mistress.

The large Hickory-nut Tree at Witton. — I have been to examine this tree more particularly than I had before, and find it to be the *Júglans nìgra* of the *Hortus Kewensis.* I have a small tree that had been headed down for years, but, by my subsequently letting it grow, it has a few nuts on it this year; that at Witton, no doubt, was planted by the Duke of Argyle, about the year 1760, and some years bears a quantity of nuts: I did not see one on it this year. I am, Sir, yours, &c. — *Robert Castle. Twickenham Botanic Garden, Oct.* 10. 1833.

On the Effect of Poplars in Landscape. — I reside in the country, and am an admirer of the beauty of our own native forest trees. Of later years, our landscape scenery has been disfigured by the introduction of poplars.

Their pointed tops, formal growth, and gigantic size, so disproportionate to the natives of our own forests, occasion me to be an advocate for their entire disappearance from amongst us. If this be too much to expect, then I hope to see them confined to low and obscure situations, where their stiffness, formality, and disproportion will be less likely to disfigure the landscape. — *Z. September* 12. 1833.

The writer evidently refers to the Lombardy poplar, and as evidently is but a smatterer in matters of taste. We request him to turn to the first volume of this Magazine, and to peruse Mr. Thompson's paper on the poplar in park scenery. (p. 16.) Has Z. ever looked into the landscapes of eminent artists, or the engravings published from them, and marked the use made of poplars by those who are allowed by the general consent of mankind to be the best judges of landscape compositions? When he next comes from his retirement in the country to London, we beg of him to walk from the west end of Oxford Street to Porchester Terrace, Bayswater, and observe, on his left hand, the fine effect of the Lombardy poplars in composition with the elms, oaks, and chestnuts in the marginal plantations of Kensington Gardens. That man must be wonderfully behind the times in which we now live, who would propose to banish a tree from the country, merely because he does not like it. — *Cond.*

Mr. Main's Notes on the Cultivation and Manufacture of the Tea in China. (Vol. IV. p. 454.) — Mr. Main states that "a particular tract of the empire is called the tea country, viz. *Tok-yen*, Ho-ping, An-koy, &c., which is situated between the 30th and 33d degrees of north latitude. All the different kinds of tea named in the invoices and in the shops of the merchants, are produced from the same kind or variety of the plant: it is only the times of gathering and manner of curing which cause the difference in appearance, quality, and value. The leaves which are gathered earliest in the spring make the strongest and most valuable teas; as peko, souchong, &c.: and the latter gatherings are inferior, and called congou, bohea, &c. Green or hyson can be made of any of these gatherings, only by a different mode of drying. Small proportions of the leaves of other plants are sometimes added; but care is taken that this is not detected, as this is considered a deterioration; these are the leaves of the *O'lea fràgrans*, and sometimes those of the San Cha Yu (Camèllia *Sasánqua*); and in the sort called peko small silvery leaves may be observed, which appear to be those of the Azàlea índica (To-kune); all, however, perfectly harmless. The Chinese, however, deny that any of the latter leaves are ever introduced." So far Mr. Main.

Now, in confining the tea country within the limits of 30 and 33 degrees, he excludes the whole of Canton province and Fokeen province, from whence (almost) all the black tea comes; and also Hwuy Chow Foo, in the province of Keang Nan, in which district the greater proportion of the hyson and twankay tea is manufactured; though at the same time he mentions the names of Ho-ping, in the province of Canton, and An-koy (meaning Ganke Heen), in the province of Fokeen; which latter, I presume, is intended by Tok-yen. So far as relates to the first gatherings making the strongest and best teas, both of black and green, Mr. Main is correct; but it is surprising that any person who has been in China, or, indeed, any other person who has seen the difference in colour of the infusions of black and of green tea, could suppose for a moment that they are the produce of the same plant, differing only in the mode of curing. Neither do they grow in the neighbourhood of each other. The black teas are chiefly grown in the N.W. corner of the province of Fokeen, in about lat. 27° 50′, long. 1° 30′ E. of Peking; and the green tea, in the southern part of Keang Nan province, about lat. 29° 58′, long. 2° 0′ E. of Peking. The leaves of the *O'lea fràgrans* differ too much from those of tea to be mixed with tea, even if a quantity could be procured for the purpose; but this plant is kept chiefly for ornament, and consequently is too scarce and too dear. Its flowers are occasionally put among tea, but then it is only with very small quantities of tea intended for presents. There is no such plant as the San Cha Yu. Mr. Main appears to have mixed the names of two plants. The San Cha is the single red-flowered Camêllia japónica; the Yew Cha is the Camêllia oleífera *Loureiro*, a single white-flowered kind of Camêllia, from the seeds of which much of the oil used at Canton is expressed; but the leaves of these plants are too thick and harsh to be mixed with tea without immediate detection. The silvery leaves, which Mr. Main supposes to be those of Azàlea índica, are, in reality, the early shoots of the tea-plant: the leaves of Azàlea are too scarce, and would be too dear, for mixing with tea.

Mr. Main's Observations upon Chinese Scenery, &c. (Vol. II. p. 135.) require some corrections. The view (fig. 38.) could not have been seen in the neighbourhood of Canton.* The (Mackcan) Epidéndrum fuscàtum would now be thought dear at one dollar per plant. The *Pỳrus* does not come under the generic name Cha. The Chinese divide the Linnæan genus; the eatable varieties fall in with the plums, under the generic term Le; while *Pỳrus* japónica [*Cydònia* japónica] and [*Pỳrus*] spectábilis unite with *Hypéricum* monógynum under (what may be called) the generic term Hoey Tang. — *J. Reeves. Clapham, Oct.* 28. 1833.

Additional notes in relation to the history of the tea plant will be found in Vol. VIII. p. 89. 490. — *J. D.*

Mr. Munro's Suggestion (p. 551.) *for the Formation of a Sylvan Society* I am much pleased with, and I agree with him in almost all he says on the subject. I seldom pass by other people's woods or plantations but my fingers itch to thin, and weed, and prune out. In short, as Mr. Munro has truly said, " the greater proportion of our woods, from neglect or mismanagement, look as if they belonged to nobody."

The Oak Trees which turn away their Heads from the South-west (p. 548.), described by Mr. Clarke, are by no means peculiar to his part of the country [Poole, Dorsetshire]. Years ago, I was much struck with the same thing in the Isle of Wight, and have often said, that, were I ignorant of the points of the compass, I could immediately discover them by looking at an oak tree. Even in Warwickshire, in exposed situations, the oak trees show their aversion to the south-west, by turning away their heads from that quarter. — *W. T. Bree. Allesley Rectory, near Coventry, Warwickshire, Oct.* 19. 1833.

Mr. Munro's Mode of training the Oak Tree for Naval Purposes. — Sir, Your valuable correspondent, Mr. Munro, certainly deserves high commendation for the enthusiastic love of country displayed in the preamble of his communication " on training the oak tree, so as to produce curved timber for use in the construction of ships " (p. 557.); but, as far as I can see into the system Mr. Munro has adopted, I think that his zeal has rather surpassed his good sense. Had Mr. Munro remained two or three years longer in the place where he began to conduct his experiments, I am afraid he would have found the results very different from what he anticipated. In giving his paper an attentive perusal, the following (what I conceived) imperfections in his plan occurred to me, and, if I am wrong in my conclusions, I beg that Mr. Munro, or any of your able correspondents, will be so good as set me right.

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* Mr. Main is not responsible for these views. We had them copied from a well-known French work, entitled *Recueil des Jardins Chinois.* —*Cond.*

It appears to me that the part of the trunk left above the upper shoot (which in trees sixteen or twenty years old, and at 7 ft. from the ground, is generally from 3 in. to 5 in. in diameter), from its want of foliage, must inevitably decay down to the knee where the upper shoot strikes off, and that the accumulation of wood and bark below this will ultimately form a cup or hollow which will contain moisture sufficient to rot the centre of the trunk for a considerable distance downward. Consequently, the tree will be rendered unfit for any purpose where strength or durability is an object. It is always found to be the case, that trees or shoots, when supported by posts or otherwise, ultimately become too weak to support themselves when the said props are removed; therefore I am of opinion that the wind, acting upon the points of Mr. Munro's horizontal shoots, would cause sad twisting and creaking among their knees and curves. I am also much inclined to think that he would find considerable difficulty in supplying his six or eight shoots with an equal quantity of nourishment, as the uppermost would naturally have a strong pull for the advantage, which, if it once attained, it would, in all likelihood, keep, if some means or other were not adopted to prevent it. It is a common saying, "Bend the twig when it is young, and it will retain its form." Mr. Munro seems to have acted upon this principle; but I am afraid the shoots will not keep the form in which he left them. Trees and branches, when bent down from their natural position, have always a strong tendency to rise upwards. This I have seen exemplified in the case of oak, willow, apple, pear, larch, and other kinds of trees, when thrown or bent down, either by wind or otherwise, provided as much of the root remained in the ground as kept them alive, even although they were upwards of 1 ft. in diameter. This leads me to think that, if the trees Mr. Munro experimented upon be upright-growing varieties (even supposing them to have withstood the effects of the wind), what he intended for curves and knees will, in the end, turn out only slight bends, and if more than one, or at most two, shoots take the lead, they will be nothing but a mass of confusion.

My own opinion is, that collecting acorns of the most crooked varieties of oak, and planting their produce on the outside of plantations, or in such situations that one side of the oak may be deprived of light and air, by its nearness to other trees of stronger growth, together with judicious pruning, is the most effectual method of procuring crooked oak timber. If you think these remarks worthy of your notice, this may perhaps be the subject of another communication. I am, Sir, yours, &c. — *A Journeyman Gardener. Inchture, N. B., Oct.* 21. 1833.

We shall be happy to hear frequently from so intelligent a correspondent; but we beg to remind him, that, in criticising the opinion of a writer who gives his name, good and brotherly feeling requires that the critic should give his name also. — *Cond.*

Difficulties opposing the Efforts of any one to decorate, by planting (as advised in p. 543—550.), *Grounds on the Sea Coast.* — Sir, I believe that sea air is always very injurious to vegetation, but I have observed that it is particularly so in high winds and hurricanes. I have, however, never observed any injurious effects result to plants from contiguity to the ocean, when the wind has blown from the land. Much depends on the position of the situation relative to the sea. The point from which the wind blows most in Britain is the west, or one or other of the points adjoining the west, and the sea winds from these points are more powerful than from any other; because, as Britain is so near the Atlantic Ocean, it follows that the wind is stronger on the west coast than on the eastern one, as the latter lies near the German Ocean, which is small in comparison with the Atlantic, and has besides the continent of Europe and Asia beyond it. I know less of the east coast than of the west. The soil of the coast of

Lancashire, on which I have made my observations, is very barren and poor. Along the coast, and to the north of Liverpool, where many improvements have been made, I have had an opportunity of observing the effects of the sea air and sea winds, and have found that much depends on the distance which the trees are from the water. Plants which will not live close beside the sea, will do so, and in some degree thrive, a mile or two from it. I have seen as much difference in trees of one species which have grown in these different situations, as there is between a gooseberry bush and a full-grown oak tree. Much, also, depends upon the nature of the situation: if sheltered by hills, or by a sea wall, so much the better. A little, also, depends on the nature of the soil; as, the nearer it is to the sea, the more sandy it becomes. Plants will not, however, thrive in either rich or poor soil, if exposed to the main force of the winds; as it is the particles of salt, carried over and sprinkled upon the plants by the sea wind, which produce these injurious effects. If the plants can be screened from these particles, many kinds will live for a time, but will not attain to a great age. Many are blown down by the high winds, or broken off. Some kinds of plants will do in places in which others would perish; observation alone can ascertain those which will do best: I have noticed the same species in various positions. Some sorts, that do elsewhere in poor soils, cannot endure poor soil in conjunction with the salt air: other sorts will do sheltered by the more hardy ones. I have not found any to endure the vicinity of the sea so well as the black Italian poplar and the willow; and these have, according to my experience, proved the best adapted to screen the others. Most other kinds can hardly maintain a bare existence if within a mile of the sea, and not screened. The sycamore, beech, alder, mountain ash, elms, Spanish chestnut, horsechestnut, birch, and hawthorns may be ranked next to the above for hardiness. The oak and the larch require to be well screened to live at all. The Scotch and most other pines can only maintain a bare existence, when well screened; at least, it is seldom that they live through the first year; and though here and there one may be seen behind other trees, it is sure to have only a few branches, and those all reclining to the east. Of the hardier shrubs which thrive, more or less, near the sea, I may mention the common privet, Persian and common lilacs, philadelphuses, Guelder rose, elder, laburnum, dogwood, ivy, honeysuckles, and many others. Some more tender may also exist; these require a place to the east of the hardier kinds. As all usually exhibit a posture reclining eastward, and have but few or no branches to the westward, the appearance of a shrubbery or of a round clump never has a good effect; and the trees most to the westward, though of twenty years' standing, are only like shrubs. All trees planted near the sea, on the west coast, recline, in a greater or less degree, to the east, and form thus a regular slope. If screened by a wall on the west, those nearest it will never attain a height greater than that of the wall: they may make fine shoots in the summer, but in the winter these shoots will be killed down to the level of the wall: in proportion to the distance of the plants from the wall, they gradually rise higher.

It must also be observed, that it is labour in vain to plant trees or shrubs in such a situation before the end of March, as the winds previously to that period are very strong from the west; allowance, of course, being made according to the distance from the sea.

I may here notice two ash trees, 1½ mile from the sea, as a proof that at that distance they will attain a large size. They stand fully exposed, in a hedgerow by the side of a road, and are of a sufficient size to form an arch over it. I have often got up one of these trees, walked along its main stem, and descended with ease at the extremity, going across from one field into the other, and passing over the road. There are many instances of trees standing alone, of somewhat the form of those figured in fig. 127., and described in p. 549., by your correspondent, W. B. Clarke.

At Seaforth House, and in its neighbourhood, near the sea, many improvements have been made. When we have planted a small plot of trees in an exposed situation, they have oftentimes all died, without even coming into leaf; and if a gap has been made in a plantation previously formed, it is seldom that the trees fresh planted to fill it up succeed, as we have renewed them several times, trying both young and old plants.

Evergreens will not thrive at all near the sea, unless they are well sheltered with other trees and shrubs; and even then, if merely small bushes, they will not do much. Some of the hardiest sorts of American plants will do for a time, but in general they die away. Very few kinds of plants look well, as most of them become full of dead wood in a short time.

Gardens contiguous to the ocean exhibit the best appearance in the summer, when the annuals and bulbs are in flower; these not being affected, from the season in which they blossom. I may here mention an instance of a gentleman coming to reside on the coast, who determined to screen all his land with trees, as he said that trees would do very well in Scotland 15 miles from the sea; as, indeed, they would do here, within a less distance than that. He therefore obtained a man from Scotland to achieve the object desired. He planted trees, &c., at the edge of the water, and created a laugh amongst his neighbours. I left that neighbourhood soon afterwards, and cannot state the results from observation; but I am quite aware that they would all die, and this (as they were planted in February) even before they came into leaf.

Of the British Plants which grow spontaneously near the sea, I will, with your leave, name a few species: — *C*ynoglóssum officinàle, Erythræ`a aggregàta, *G*enti*àna* campéstris, *P*arnássia palústris, *O*nònis spinòsa, *S*enècio vulgàris, *S*èdum sexangulàre, *A*chillè*a* *M*illefòlium, *Alchemílla* vulgàris, Scabiòsa arvénsis; *Æ*rìca vulgàris, *T*étralix, and cinèrea, but very diminutive; yellow cytisus [? *C*ýtisus scopàrius, ? *G*enísta tinctòria], eyebright [? Euphràsia officinàlis].

Hawthorn Hedges stand as well as any thing. If the wind blows strong from the west, all the branches on that side are quite wet, and on touching them with the tongue, have a very salt taste; and this prevalence of salt I believe to be the cause of the young shoots being killed yearly.

Most of the kinds of trees and shrubs mentioned would do, no doubt, a little better with a better soil; as the natural one is very sandy, although a little below there is a bed of clay, which helps to keep the other moist. I am, Sir, yours, &c. — *Philip Davies. Upton, near Stratford, Essex, Oct.* 24.

The difficulties attendant on forming a garden on the coast, remind us of those noticed by Dr. Howison as incident to Shetland, in his MS. tour to those islands, some years ago, with which he favoured us. He states that " the fisheries and kelp manufacture are the principal sources of wealth of the inhabitants, and constitute the chief value of the Shetland Islands, in a national point of view. Gardening is rarely attempted, and only by some of the principal proprietors. The most common culinary vegetables require the protection of lofty walls; and the hardy gooseberry trained to them, produces only a few half-ripe fruit in the month of September !" To give an idea of the state of gardening there, Dr. Howison relates, that William Mouat, Esq., proprietor of the Island of Brassa, " every few years gets a young gardener from the south country, who, although he enjoys a good salary and every comfort, disgusted with the unsuccessful result of his labours, becomes low-spirited, and soon returns again to a more genial clime, where his professional toils are rewarded with success." Agriculture is also at a low ebb; oats, barley, and potatoes are raised on the few spots of arable land, but they are, from the rigour of the climate, always inferior.

The Action of Soot on Grubs. (p. 573.) — To test the statement made in p. 573. of the fatal, or at least unwelcome, influence of soot on grubs, I have put two fine fellows separately in garden pots partly filled with a mixture of soot and earth, and have given them the green herbage of potato plants for food. When they have eaten what they like, they bury themselves in the mixture, regardless of the soot. — *J. D., sen.*

Anon.'s Device (p. 569.) *for preventing the Ravages of Rooks on newly-sown Corn.* — It would not much grieve me to see Anon. subjected to a six hours' taste of the misery to which the device he recommends must necessarily subject that truly useful bird, the rook; a bird that confides in man, that builds its nest and rears its young on the trees that shade his dwelling, that follows his plough within a few yards of the driver, and destroys the larvæ of numerous insects that would otherwise destroy his crop. Hunger may compel the rook to feed on grain; but it is too well known for me to say any thing about it, that its favourite food is insects in the larva state. But granted that the rook may be injurious to crops newly sown, is our population so thin that no children can be found for 6*d.* or 8*d.* a day each, to keep off the depredators for a few days, until the crop is up? Yes, and at less expense than Anon's infernal machines would cost him. I have repeatedly examined the crops of rooks. In six young that had been shot, the crops were nearly filled with wireworms; in the crops of others I have found the larvæ of the cockchafer, and other grubs that I am not entomologist enough to know the names of. In one or two instances, in frosty weather, I have examined the crop of one or more rooks that had been shot; it contained dung, earth, and a small portion of grain. I will just notice, that the land adjoining Mr. Wiles's rookery is yearly sown with pulse or grain, and in no instance have I known or heard that the land has, in consequence, failed of a crop. — *J. D. sen. Oct.* 17. 1833.

The home-made Snuff (p. 586, 587.), tested by a most experienced snuff-taker, and found deficient, was sent hence on February 13.: and on May 24., when I had the pleasure to see you at Bayswater, Mr. D. showed me the snuff, the bottle which contained it being without a cork, and he informed me, that one person to whom he had submitted it compared its strength to that of the foreign snuff of the shops as 5 to 7; but that another gentleman was to give a final decision upon its merits. Now, an experienced snuff-taker knows well, that if he were to have his box of high-dried Welsh open only for a day or two, its contents would become vapid, its flavour deteriorated, and its pungency materially lessened. There is, too, another circumstance that I should mention, viz., that no other substance had been added to mine, while the snuffs of the shops are never free from them. I have now some Welsh before me, brought by a friend from Lachern y Medd, a village in North Wales, where large quantities are manufactured: in this I can, without difficulty, distinguish a number of white particles, gritty under the knife, which I presume to be lime, as, on sprinkling a small quantity of this snuff on the surface of some water, these particles invariably sink first; and on putting some of them, which I have picked out separately, into water, I find that they require, though they do at length dissolve, a large proportion of water to effect it. I took care that the water employed should be free from lime, and on the addition of a solution of oxalic acid, it was again precipitated. It has been always affirmed, and I believe with truth, that carbonate and muriate of ammonia, and, in moist snuffs, if not in dry, chloride of soda (common salt), are invariable ingredients. I have, to some of my own snuff, added a portion of carbonate of ammonia, and find the pungency much increased thereby, as would, from the very nature of the salt, be expected. I was not before aware that lime was ever employed; but we may easily judge of its effects from its caustic nature. — *J. C. K. Levant Lodge, Oct.* 23. 1833.

ART. V. *Queries and Answers.*

ADDITIONAL Information to that of J. D. as to the Mode of taking Impressions of the Leaves of Plants. (Vol. IX. p. 629.) — Sir, If W. Whiddon should not come forward with his method of taking the impressions of leaves, &c., the following, I hope, will meet the wishes of J. Polleck: —

Directions for taking Impressions from Plants, on Cotton, Silk, Lawn, Muslin, or Linen. — The colours, which may be obtained from any chemist's, must be prepared with cold-drawn linseed oil. The balls are to be made of soft leather, and stuffed with wool. If the impressions be taken on paper, they may be coloured afterwards with any water-colour.

Directions for making the Colours. — Lampblack or ivory black makes black; king's yellow or orpiment makes yellow; Prussian blue and king's yellow, added together, make green; rose pink or drop lake makes pink; smalt or Prussian blue makes blue; vermilion or carmine makes red. A thimbleful of roche alum, added to one ounce of any of the above colours, will make them stand washing and wearing.

I am entirely of opinion, with J. D., that "no practical advantage seems derivable from this knowledge (the knowledge itself is very well); for dried specimens of leaves, and such other flat objects as one can take profiles of by means of it, are far more useful, and as easily prepared." I had all the necessary implements for the process, and took many impressions, but I gave it over as waste of time, compared with that employed in preparing specimens themselves. If the botanical knowledge of plants be the end in view, the, I may almost say, indelible, impression of the name and habit of the species, left on the mind by the necessary attention and labour attendant on drying them, and afterwards anointing them with a mixture of the muriate of mercury and camphorated spirits of wine, for their final preservation from insects, is of quadruple the importance, in promoting the knowledge or remembrance of them, that taking the mere profiles of their leaves is. Indeed, if a person has in his possession the *Encyclopædia of Plants* and *Hortus Britannicus*, and understands botanical terms (which, if he does not, they will explain to him), he may almost determine the name of any species contained in these volumes. —I am, Sir, yours, &c. — *George Thomson. High Elms, Oct.* 26. 1833.

By what harmless Means can Martins and Swallows be induced to cease building and breeding in the Places in which they have been long allowed to build and breed? — The affection for locality is so strong in the swallow and martin, that they can scarcely be driven away from an old establishment. Chicherley Hall, Bucks, having for several years been neglected, a free opportunity has been given to the birds to affix to it some hundreds of nests in a season, under the cornice of the mansion. Last year, I tried to scare them away by nets, feathers, gas tar, destroying their nests, &c., and all to no purpose. [The martin has been known to renew its nest four times in one season, in one place.] As I do not wish to kill the little creatures, I solicit some correspondent to inform me of a means by which I can drive them away. — *William Whiddon. Chicherley Hall, Bucks, Feb.* 28. 1833.

To this query, which we have published in the *Magazine of Natural History* (vol. vi. p. 456.), a correspondent (Mr. Fennell) has replied, and recommended Mr. Whiddon "to obviate the possibility of the swallows' and martins' being at the trouble of erecting their nests, by spreading a thick coating of soap upon the sides of such places as the birds have been in the habit of appropriating to their own use. Whenever the birds attempt to stick their muddy materials up, its moisture will moisten the soap, and the sliminess of this will prevent the adherence of the muddy material, and cause it to fall down upon the earth. I believe this to be an old plan, and an effectual one."

The Elms in Camberwell Grove, &c. (p. 630.) — I cannot answer the query in this case, having never seen the elms in Paris; but their producing abundance of seed is no criterion of distinction. A green-house plant will sometimes flower better in a poor man's window than in a first-rate green-house under a first-rate gardener. The question is too vague to be answered. I believe there are as many varieties of oaks and elms in England as there are of apples and pears. — *Agronome. Oct.* 29. 1833.

The Lag in Timber. (p. 629.)—An experienced forester can as readily discern when a tree is affected with the lag, as an experienced shepherd can discern when his sheep is affected with the rot; and the knife for the sheep and the axe for the tree are the best remedies for each. The immediate cause of the disease (the lag) may, however, be generally traced back to a wet summer and an early winter; such as those of the year 1816 and the year 1822. The alburnum in these seasons never got thoroughly ripened, because the leaves had not a chance of finishing their labours of pumping off the extra-moisture; and as the tree, in such a case, becomes top-heavy, and is easily blown about by the winds, the weakest circle fails first. — *Agronome. Oct.* 29. 1833.

Treatment of a Plantation of young Oaks.— Your correspondent, "A Reader" (p. 630.) should by no means cut down his young oaks, but should prune them well and properly for ten or twelve years to come; that is, with a long chisel and mallet, to strike off all rival leaders, and all such boughs as intrude upon the adjoining trees. Should any of the trees have a head like a besom, weed out three fourths of it, preserving a leader. Should the trees be only 4 ft. apart, they may stand thus till every one is fit for sawing down into two 9-ft. rails. Then the forester should keep on felling the worst every year, till the trees stand about 20 ft. asunder, when he must leave the estate to his son. — *Agronome. Oct.* 1833.

Treatment of a Plantation of young Oaks. (p. 630.) — Assuming the soil to be favourable to the quick growth of oak, from that tree having been selected, I would cut down, as soon as they will peel, in the spring, as many of the trees as will leave a crop for timber, standing at least 60 ft. apart, and cut them very carefully 3 or 4 in. above the ground, so as not to injure or wound the stool. If the trees are left thicker than I have mentioned, they will materially injure the growth from the stools. I should not recommend an increase of the stools by layering; because, although new stools will be thereby more quickly established, they will, of necessity, be much too near together. A great deal of produce is sacrificed annually in coppices, as in most other crops, by filling them up too closely, and thereby excluding the sun and air, so essential to their fertility. I am strongly inclined to think that, where oak coppice thrives well, the stool, in a given number of years, will pay better than the timber; the bark of the young growths being very superior in quality; but an owner of woodland in Herefordshire would be a better authority for "A Reader's" guide than I am. — *Charles Lawrence. Cirencester, Oct.* 4. 1833.

Treatment of a Plantation of young Oaks. (p. 630.) — "A Reader" would more readily have obtained an answer to his query, had he entered a little more into details, and stated the exposure, and the quality of the soil, of his plantation ground, and also the distance at which the trees at present stand from each other, &c. If the oaks have been planted at what is generally admitted to be the proper distance, viz. 8 ft. apart every way, then the most profitable method of managing the plantation is turning it into copsewood; as, if allowed to remain long at this distance, even "A Reader" will, I think, on reflection, confess that it is quite impossible for them to become useful timber. Supposing this to be the case, I would advise, without further delay, that the plantation should be thinned out;

leaving the trees 18 ft. or 24 ft. apart; varying this distance, less or more, in favour of a better tree. The bark obtained at this cutting will more than meet the expense of labour, and the wood will make superior charcoal. From fifteen to twenty years hence, when the coppice is ready for a second cutting, " A Reader" will be able to judge what number of trees should be left as permanent standards of those reserved at the first cutting. Most of these trees will by that time have arrived at a bearing state; and " A Reader" will do well to select as many as possible, for the permanent standards, of Quércus *R*òbur, in preference to *Q.* sessiliflòra; the latter yielding the least valuable timber. Such of the trees reserved at the first cutting, as now require to be removed, will turn to good account in bark, and the wood at this age will be fit for various useful purposes. Having said thus much, I trust it is hardly necessary to remind " A Reader" of the impropriety of thinning out to the permanent distance at once; for, if the plantation be as thick of trees as it ought to be, to lay it open at once might be too great a transition, and consequently hurtful to the remaining standards; which is a sufficient evil of itself, independently of the depreciation of bark and timber which such a course would effect. With regard to laying down branches of oaks, for filling up blanks in the plantation, that may be done any time between November and April. It is, however, more a curious, than useful, piece of cultivation; and I would recommend employing stout young oak plants, at once, to fill up blanks; say 3 ft. to 3½ ft. high. Such plants can be had for from 35*s*. to 40*s*. per 1000. In cutting coppice wood, perhaps the following hints might be worth " A Reader's " consideration: — Oak should not be cut until the leaves are nearly full-blown; otherwise the bark cannot be separated from the wood to any advantage. In Scotland, the cutting of coppices seldom commences before the first week of June: before the stools throw out the young suckers, four or six weeks more elapse; and before these shoots are ripened the winter sets in. The consequence is, that all, or the greater part, of these shoots are partially destroyed; and this circumstance causes a numerous increase of laterals in the following summer; by which the stool is materially weakened, and the cutting of the coppice wood retarded two or three years at least. To obviate this defect of our climate, I once tried the following experiment, which, although not upon a scale sufficiently extensive to warrant my recommending it in preference to any other mode, yet, I must say, produced a result which was so much to my satisfaction, that I do certainly consider it worthy of a trial upon a larger scale: — On the 1st of November, 1825, after having pitched on six young oak trees, 5 or 6 inches in diameter, I cut off the communication between the root and top by the bark: this I accomplished by cutting out a piece of bark, about an inch broad, all round the tree, 2 or 3 inches above the surface of the ground. My motive for this was, to let the stool have the full advantage of the returning spring growth. On the 4th of June following, when I came to cut these trees down, I found them in full leaf, or nearly so, with suckers below the part where the bark was cut out; several of which were 3 in. and 4 in. in diameter, and two of them nearly 6 in. in length. A little attention was necessary in cutting down the heads from the stools, which I performed with a small pruning saw, in the month of July. I thinned the suckers on the stools, so as to leave only five on each. These ripened well, and made from 5 ft. to 7 ft. of wood in the course of the season: however, in the ensuing winter they were mostly eaten down to within 6 in. of the stools by hares. I cannot understand what tempts gentlemen to harbour these confounded vermin about them. Cutting with the saw may be considered a more expensive operation than with the axe; but if, as I believe, it has a tendency to advance the growth of the coppice by two or three years, perhaps it is the cheapest in the end. One advantage of using the saw is, that the roots of the stool are not shaken by it, as they are by the stroke of the axe; and taking out a piece of the bark, or ringing as it is termed, in the early part of the winter, is also advantageous, in as far as, before the top is cut off, the bark is firmly united to the wood of the stool; by means of which there is no shrinking, as is the case when the bark and wood are cut at the same time and the sap is rising. Consequently there is no opening between the wood and bark for the lodgement of rain-water, or moisture of any kind, to cause the stool to decay. I am, Sir, yours, &c.— *James Munro. Brechin Nursery, Oct.* 1833.

The Box Tree. — As the wood of this tree is now greatly in demand for the wood cutters (see *Penny Magazine,* supplement for Oct.), how far would it be worth while to make plantations of it in those parts of England where it is understood to have been formerly abundant? How many years would the tree require before its trunk became fit for use? Would it be advisable to try the Balearic box? — *E. H. Green. October,* 1833.

Pumping. — What disease among larch trees is meant by this term, used in p. 553.? — *W. T. Bree. Allesley Rectory, Oct.* 19. 1833.

The Female of the Lombardy or Turin Poplar (Pópulus *dilatàta* L.). — Has it yet been established in this country? In 1830 it was in Vol. VI. p. 419.) stated that M. C. A. Fischer, of the Göttingen botanic garden, had succeeded in finding one female tree amongst many thousand male ones around Göttingen, and that he had sent cuttings of it to the Botanic Garden at Bury St. Edmunds, which had failed to grow. — *C. M. W. London, Sept.* 10. 1833.

On cultivating Xanthochy̆mus tinctòrius Rox., *in relation to the Question on cultivating the Mangosteen, asked in* p. 378. — J. B., in asking, in p. 378., for information on the method of so cultivating the mangosteen in Europe as to cause it to produce fruit, refers to your mention, in p. 150., of the mangosteen's being in cultivation in M. Boursault's collection. You have joined J. B. in requesting some facts on our mode of training this plant, which I readily communicate; but it unfortunately happens that the plant you have mentioned as the true mangosteen (Garcínia *Mangostàna* L.) is not that species, but the Xanthochy̆mus tinctòrius *Rox.*, figured in Roxburgh's work, *The Plants of the Coast of Coromandel,* t. 196. With regard to this latter plant, M. David, of whom you have spoken in p. 147., has communicated to me the following facts: — His tree is growing in a round box, 18 in. in diameter, plunged in a bark bed in the stove. The soil which agrees with it is pure heath mould, or rather heath mould, mixed with common garden soil, or turfy loam. The plant is 5 or 6 feet in height, and is devoid of branches for 2 or 3 feet up; the branches then commence, and form a rounded head, of no very great circumference. It is not upon a trellis. The stem at the bottom is not so thick as my wrist. The plant bears fruits as large as fine green gage plums (*belles Reines Claudes*), either single, or more frequently united in twos, threes, or fours, and with flavescent flowers. It has borne fruit for several years, and receives no particular treatment. It is necessary that it be kept in a hot and moist atmosphere, in a good hot-house; but, above all, the roots of the plant should be constantly kept very warm. If the heat of the tan be weakened, or if the plant be kept any time out of the tan, it is immediately perceivable by the foliage. The fruit, M. David states, is delicious, and always cool, although gathered in a very warm atmosphere, and eaten immediately. M. David has raised several plants from the seed of his tree, which appear to be as vigorous as their parent. He has now two about 18 in. in height, both of which are thriving very well. — *L. L. L. Paris, July* 6. 1833.

We shall be glad to hear more frequently from this esteemed friend and correspondent, than we have done for some time past. — *Cond.*

Tubers of Pæonies eaten into by the Grubs of a Moth; of what Species? — The plants of my collection of pæonies, which consisted of upwards of twenty-seven kinds, had been planted some few years, when several of them died, and others began to decrease rather than increase in size. This led me to transplant, this autumn, the plants remaining, when I found, to my great surprise, the tubers eaten away in an extraordinary manner by the larvæ (grubs) of some insect; and, as I did not find the grubs about other kinds of plants in the same plot of ground, I suppose they may be peculiar to pæonies. The grub is flabby, of a bluish white, from 1 in. to 1½ in. in length, with a yellow head. Of what insect is it? Has any correspondent observed the tubers of pæonies similarly ravaged? — *E. London. Oct.* 23. 1833.

I have known the tubers of pæonies, the rootstocks and fibrous roots of veronicas and of other plants ravaged by the grubs of one or more species of moth of the family *N*octùadæ. Veronicas, and other freely growing herbaceous plants, in two or three years form a tuft or little hillock of matted fibres, which afford fine pasturage for ground grubs, the effects of whose ravages are soon shown in the plant. Transplantation, and killing the grubs, are the only remedies I know of. It is just possible that E.'s grubs were of the cockchafers (*M*elolóntha vulgàris and *M.* solstitiàlis) or of the rose-coloured beetle (Cetònia auràta). — *J. D.*

The Moorpark Apricot is subject to a disease by which its branches die suddenly, without any previous indication of want of health or strength. Can any of your readers say what is the cause? — *J. S. H. Oct.* 28. 1833.

Packing Fruit. — What is the best way of packing fruit to travel; particularly strawberries, grapes, and peaches? — *A Constant Reader. Oct.* 10. 1833.

Nets for Gardening and Fishing, and other Purposes; that is, that have to be much exposed to the weather; what is the best preparation for preserving them? Tar is too sticky. — *B.*

Mr. Main has told us that some fishermen send their nets to a tanner's, to have them tanned previously to using them. — *Cond.*

Gold and Silver Fishes. — How are these managed in glass globes or in basins, during the winter and the summer? — *Wm. Godsall. Hereford, Oct.* 16. 1833.

Some information on the management of gold and silver fishes has been previously given in Vol. III. p. 382. and Vol. IV. p. 191. 319.

Filtering Machine. — What is the best filtering machine, adapted from its price, for cottages, in a situation where the water is totally unfit for use? — *A Constant Reader. Oct.* 10. 1833.

Take a large flower-pot, and put either a piece of sponge or some cleanly washed moss (*S*phágnum is to be preferred) over the hole at the bottom. Fill the pot three fourths full with a mixture of equal parts of clean sharp sand and charcoal broken into pieces about the size of peas. On this lay a piece of linen or woollen cloth, large enough to hang over the sides of the pot. Pour the water to be filtered into the basin formed by the cloth, and it will come out pure through the sponge in the bottom. The cloth must be frequently taken out and washed, as must the sand and charcoal, and the piece of sponge or moss in the bottom. The larger the pot, the more complete will be the filtration. The charcoal is easily procured, by burning a few pieces of wood in a slow fire. This is the cheapest description of filter which we know of. In the *Mechanics' Magazine*, and in our *Encyclopædia of Cottage, Farm, and Villa Architecture*, will be found several others calculated for cottagers and farmers. — *Cond.*

Art. VI. Covent Garden Market.

	From			To		
	£	s.	d.	£	s.	d.
The Cabbage Tribe.						
Cabbage, per dozen:						
White - - -	0	0	9	0	1	0
Red - - -	0	2	6	0	3	0
Plants or Coleworts -	0	3	0	0	3	6
Savoys - -	0	1	6	0	2	6
Cauliflowers, per dozen -	0	1	6	0	2	6
Broccoli, per bunch:						
White - -	0	1	3	0	2	0
Green - - -	0	1	0	0	1	3
Cape - . -	0	1	0	0	1	6
Tubers and Roots.						
Potatoes - per ton	0	4	0	0	5	0
per cwt.	0	4	0	0	5	0
per bushel	0	2	0	0	2	6
Kidney - -	0	2	6	0	3	0
Scotch - - -	0	2	0	0	2	3
Jerusalem Artichokes, per half sieve - -	0	1	0	0	1	6
Turnips, White, per bunch	0	0	2	0	0	3
Carrots, per bunch -	0	0	4	0	0	6
Red Beet, per dozen -	0	1	6	0	2	0
Horseradish, per bundle -	0	2	0	0	4	0
Radishes:						
Red, per dozen hands (24 to 30 each) - -	0	0	6	0	0	9
White Turnip, per bunch	0	0	2	0	0	3
The Spinach Tribe.						
Spinach per sieve -	0	1	0	0	1	6
per half sieve -	0	0	9	0	1	0
Sorrel, per half sieve -	0	1	3	0	1	6
The Onion Tribe.						
Onions, old, per bushel -	0	3	6	0	4	6
Leeks, per dozen bunches	0	1	6	0	0	0
Garlic, per pound - -	0	0	4	0	0	6
Shallots, per pound - -	0	0	6	0	0	8
Asparaginous Plants, Salads, &c.						
Asparagus, forced, per 100	0	6	0	0	8	0
Lettuce, per score:						
Cos - - - -	0	1	0	0	1	6
Cabbage - - -	0	0	6	0	1	0
Endive, per score -	0	1	3	0	2	0
Celery, per bundle (12 to 15)	0	0	9	0	1	3
Small Salads, per punnet	0	0	2	0	0	3
Pot and Sweet Herbs.						
Tarragon, dried, per dozen bunches - -	0	3	0	0	0	0
Fennel, per dozen bunches	0	1	0	0	1	6
Thyme, per dozen bunches	0	2	6	0	0	0
Sage, per dozen bunches -	0	2	0	0	0	0
Dried Mint, per dozen bunches - -	0	0	10	0	1	0
Peppermint, per doz. bunch.	0	1	0	0	0	0
Marjoram, per doz. bunches	0	0	10	0	1	0
Savory, per dozen bunches	0	1	0	0	0	0
Basil, per dozen bunches	0	1	3	0	1	6
Lavender, per doz. bunches	0	4	0	0	0	0
Rosemary, per doz. bunches	0	6	0	0	0	0
Stalks and Fruits for Tarts, Pickling, &c.						
Tomatoes, per sieve -	0	3	6	0	5	0
Capsicums, per hundred	0	2	0	0	4	0
Edible Fungi and Fuci.						
Mushrooms, per pottle -	0	1	3	0	1	6
Morels, dried, per pound -	0	14	0	0	0	0
Truffles, per pound:						
English, green -	0	4	6	0	5	0
Foreign, dried - -	0	14	0	0	0	0
Fruits.						
Apples, Dessert, per bushel:						
Nonpareils - -	0	10	0	0	12	0
Ribston Pippin - -	0	4	6	0	7	0
Reinettes - -	0	8	0	0	12	0
Baking, per bushel -	0	2	6	0	4	6
Pears, Dessert, per ½ sieve:						
Chaumontelle -	0	6	0	0	16	0
Swan's Egg -	0	4	6	0	6	0
Baking, per half sieve	0	2	6	0	3	0
Quinces, per half sieve	0	2	0	0	2	6
Medlars, per half sieve -	0	2	6	0	5	0
Swedish Cranberries, per gallon - - -	0	2	0	0	0	0
Chestnuts, French, per peck	0	6	0	0	10	0
Pine-apples, per lb. -	0	3	6	0	7	0
Grapes, per pound:						
Hot-house - -	0	3	6	0	5	0
Hamburgh - -	0	1	3	0	1	6
Spanish - - -	0	0	8	0	0	10
Oranges, per hundred -	0	6	0	0	12	0
Lemons, per hundred -	0	6	0	0	14	0
Sweet Almonds, per lb. -	0	2	0	0	0	0
Brazil Nuts, per bushel -	0	12	0	0	16	0
Spanish Nuts, per peck -	0	3	6	0	0	0
Barcelona, per peck -	0	5	0	0	0	0

Observations. — The weather having continued favourable (since the last report) to the growth of vegetables, our supplies have been good, but by no means so heavy or abundant as usual at this season; in consequence of which the prices have been liberal, with a fair demand, and little refuse left in the market. We have had some quantity of fine early savoys, of excellent size and quality, which were, of course, planted out early in the summer, before the great heats prevailed. The coleworts are now (materially) what were watered in during August and September; they are in excellent condition, and bring the growers a fair remunerating price for their labour in getting them out, at considerable expense, during the dry season. The late cauliflowers continue to be supplied in moderate quantities, and of good quality. Broccoli begins to come to hand, but not freely; the prices are nevertheless moderate. Of onions we have not a large supply; the crop is considered but moderate, and will, I hope, compensate the cultivator, by an increase in price and in the demand for them. Turnips have not improved so much as might have been wished (from the continued prevalence of dry weather during the earlier period of their growth), but the late fine mild and moist weather; the continuance of which may prove more favourable to this most important article in our market. Carrots have been furnished very heavily, of good quality; the prices are moderate. Potatoes are not generally a good crop; but the market is at present well supplied coastwise; and the season for the Scotch arrivals being so near, no doubt they will be sent in sufficient quantities for all demands. It is not expected that they will vary much in price before the spring. Apples are in good supply, with the promise of any quantity the markets may require, if the present prices can be maintained, so as to pay the growers for the extra-expense of carriage from the more distant counties. Pears have not been so abundant, and have consequently brought better prices. — *G. C.*

ART. VII. *London Horticultural Society and Garden.*

September 3. 1833. — *Read.* A letter, dated September 1., from the author of the *Domestic Gardener's Manual,* announcing some further experiments on the effect of water upon the melon plant. (See p. 591.)

Exhibited. A new seedling shallot, from Mr. James Minard. A collection of semidouble China asters, from Mr. W. Rolins of Lynn. A specimen of *C*ánna índica, raised from seeds thirty years old, from P. Grant, Esq. A collection of flowers of georginas, from Messrs. Chandler. A collection of apples, and flowers of the wheatear carnation, from Mr. Joseph Kirke, F.H.S. Black Hamburgh grapes, from Edmund Tatersall, Esq. A collection of flowers of georginas and of heartseases, from G. Glenny, F.H.S. A seedling *M*ímulus, with yellow flowers beautifully blotched with crimson, from Mr. George Smith.

From the Garden of the Society. Flowers: Escallòn*ia* montevidénsis, Calandrín*ia* grandiflòra, Gíl*ia* trícolor and *achilleæfòlia*, Nemóphila insígnis, Leptosìphon *a*ndrosàceus, georginas, and of many other plants. — Fruits. Apples: Gravenstein, Spice, Longville's kernel, Wormsley pippin, &c. Pears: Hessel, Beurré de Mons, Summer Franc réal, &c. Nectarine: Elruge. Peaches: Noblesse, Royal George, George the Fourth, &c. Grapes: Grange's Seedling white, and Black Hamburgh.

September 17. — *Exhibited.* *C*ássia lævigàta and frondòsa, and *C*onvólvulus sp. from Brazil, from Lady Oakes. Kirke's scarlet admirable apple, Shepherd's Newington, Yellow Ingestrie pippin, Grange, Royal pearmain, and Scarlet pearmain, from Mr. Joseph Kirke, F.H.S. Five sorts of apples, and flowers of 8 seedling georginas, from Mr. J. Nairn. Two sorts of pears, and Acklam's russet apple, from Mr. G. Lindley. Flowers of 48 sorts of georginas and of 20 seedling kinds, from Mr. T. Hogg. Flowers of georginas, from Wm. Wells, Esq. The following articles from Mr. Stephen Hooker: — Pears: Poire d'Ange of Braddick, and Williams's Bon chrétien. Apples: Kerry pippin, Sugarloaf pippin, Dutch codlin, Pomme fameuse ou de la Neige, Franklin's golden pippin, Duchesse d'Oldenburg, Gravenstein, Yellow Ingestrie, Hawthornden, Royal pearmain, Yellow harvest, Red Astrachan, De Romaine, Kirke's incomparable, and unnamed. Plants or flowers of Hydrángea *q*uercifòlia; Magnòl*ia* obovàta grandiflòra var.; and Lòwe*a berberi*fòlia, grafted on Fraser's Noisette rose [!].

From the Garden of the Society. Flowers: Georginas, Swiss georginas, and China asters; *L*upìnus mutábilis and ornàtus; Eùcomis punctàta, Sternbérg*ia* lùtea, Calandrín*ia* grandiflòra; Gíl*ia* trícolor, *achilleæfòlia*, and capitàta álba; French marigold, *S*álvia pseùdo-coccínea, Stenáctis speciòsa, Calceolària viscosíssima; Alstrœmèr*ia* acutifòlia and psittacìna; Diplopáppus canéscens, Escallòn*ia* montevidénsis, Rose bengale blanche, odeur de thé, *R*òsa índica sanguínea *H*ibíscus *l*iliiflòrus, and *R*òsa-sinénsis. —

Fruits. Peaches: Chancellor, Late admirable. Pears: Reine des poires, a great bearer as a standard tree; Fondante d'automne, a new Belgic variety; Duquesne d'été and Jean de Witte, both received originally from the collection of Van Mons; Poire figue, or Pistolette, from a standard, a good bearer; Poire d'oeuf, suspected to be a swan's egg, but proves very distinct; and Bossurgan Armudi, a Turkish or Persian pear, received through Dr. Diel of Nassau. Apples: Yellow Ingestrie, Hollandbury, Large white Calville, Nelson (not Kirke's Lord Nelson), No core, Wormsley pippin, Drap d'or, Alexander, Hawthornden; Foxley, good for cider, and remarkable for its orange colour both externally and internally; Calville rouge d'automne, Crimson queening, White summer Crofton; Nonesuch, the Celini figured, and distributed about London by plants sold at a guinea each, by Phillips, Vauxhall, is doubtless the same as this; Beauty of Kent and Flower of Kent (these two sorts are often confused with each other), Golden noble, Spice apple, Autumn pearmain, and Kirke's Lord Nelson. The collection of fruits was not so good, in consequence of the wind having blown down many sorts that would otherwise have at this date been in season.

October 1. — *Exhibited.* Double-blossomed peaches, from Edmund Johnstone, Esq. Monstrous peach, from Mr. Andrew Notmann. Seedling apples, queen pine-apple, and grapes, from H. J. Grant, Esq. Cœur du roi pippin, from James Russell, Esq. A collection of flowers of georginas, from James Veitch. Apples, flowers of georginas, and grapes, from Mr. Maher, jun., gardener to Lady East. A collection of flowers of georginas, from Messrs. Chandler. Chapman's black Hamburgh grape, ripened in the open air, having been a little advanced in the spring artificially, from John Allnutt, Esq. Collections of flowers of georginas, from Messrs. Glenny, Hopwood, Dennis, and Hogg.

From the Garden of the Society. Fruit. Apples: White russet, Calville rouge d'automne; Drap d'or, a French apple, little known in this country, but is a very handsome fruit, a great bearer, and doubtless good for kitchen use; Downton, Autumn pearmain, Scarlet pearmain, Golden reinette, Hollandbury, Beauty of Kent, Cole, Cambusnethan pippin, Yellow Ingestrie, Foxley, Golden noble, Alexander; Pomme de Neige, its flesh is of a snow white; Wormsley pippin, a sort frequently mentioned as possessing excellent qualities; Pitmaston russet nonpareil, Waltham Abbey seedling, Hawthornden; Brabant bellefleur, a very excellent kitchen apple; Ribston pippin, and Hormead pearmain; Hoary morning, a good bearer; White paradise, Royal russet, Margil, Court of Wick, Crimson queening, Beauty of Wilts, Gloria mundi; Alfreston, from a tree grown on the French paradise stock; and king of the pippins. Pears: Belle et bonne, John Monteith, and Beurré de Capiaumont; Aston town, a good standard pear; Seckler, Moor-fowl egg; Fondante Van Mons, a very good pear, it generally grows much larger; Quaker, Henry Quatre; and Gansel's bergamot from a wall. — Flowers: Eùcomis punctàta, Zínn*ia* élegans, Amarýll*is* *Belladónna*, Fúchs*ia* globòsa, *Técoma* capénsis, Nerìn*e* undulàta, French marigolds, Gloriòsa supérba, Eschschóltz*ia* sp. from Mr. Douglas; *L*upìnus ornàtus and mutábilis; *R*òsa índica fràgrans, índica sanguínea, índica cérnua, and índica Pallavicìn*i*; *S*álvia Grahàm*i*, pseùdococcínea, cardinàlis, angustifòlia, and spléndens; Stenáctis speciòsa, *Màdia* élegans, Pentstèmon *r*òseus, and Eulòphia macrostàchya; Georginas of the classes, tall, anemone-flowered, seedling anemone-flowered, and Swiss.

October 15. — *Exhibited.* A specimen of bamboo, presented by Captain Joseph Andrews, Islington. A new kind of Canada gourd, and a seedling georgina, from Mr. Thresher of Hampton. A new variety of half-tall double yellow-flowered georgina, from Mr. Vaux, at Mrs. Eades's, Upper Tooting. New yellow dwarf georgina, from Mr. C. Brown. A seedling pine-apple, from Mr. Robert Buck. Kirke's scarlet admirable apple, from L. Haslope, Esq. Grapes from an open wall, from Mr. Whitley of Camberwell. A pomegranate from a north-west wall, from Mrs. Marryatt.

From the Garden of the Society. Flowers: Amarýllis *Belladónna*, Lupìnus mutábilis and ornàtus, Clématis hedysarifòlia, Diplopáppus canéscens, and asters.—Fruit. With the exception of the Marie Louise pear, and some of the Doyenné blanc, all the fruit are from standard trees. Pears: Doyenné blanc, Seckle; Marie Louise, from a wall; Comte de Lamy, a sort little known, but one which is very excellent; Figue de Naples, Poire Neill, Beurré de Capiaumont, Henri Quatre, Gendeseim, Alpha; Duchesse d'Angouleme, from a standard; Duchesse d'Angouleme, from an open dwarf grown on a hawthorn stock. Apples: Drap d'or, Barcelona pearmain; Gloria mundi, which grows, under ordinary treatment, to the weight of a pound and a half; Downton, a very abundant bearer; Citron des Carmes Golden reinette; Blenheim pippin, rather smaller than usual, owing to the tree's bearing very abundantly in this dry summer; this sort is, when young, a shy bearer, but proves a good bearer when the tree gets older; Beauty of Kent, Scarlet Crofton; Court of Wick, very good; Cambusnethan pippin, Foxley, Alexander, Pomme de Neige, Wormsley pippin; Pomme violette, Waltham Abbey seedling, Burn's seedling, Ribston pippin, Hormead pearmain, Hoary morning, King of the pippins, Royal russet, and Fearn's pippin. Plums: Coe's late red, a sort valuable for its lateness. It prolongs the season of plums to a later period than any other. The Impératrice hangs late, but this exceeds it by a month. The fruit shown were off a standard tree.

November 5. — *Read.* Observations and discoveries connected with the Culture of Melons; by the author of the *Domestic Gardener's Manual.* Remarks on the ripening of the Seeds of the Pine-apple; by Mr. R. Buck. Remarks on the growth of a peculiar kind of Pine, resembling the Pinaster; by Mr. W. B. Booth.

Exhibited. Walnuts, from Mr. Biddulph. Seedling chrysanthemums, from Mr. Wheeler. Queen pine-apple from a sucker, from Mr. G. White. Black and white Hamburgh, grizzly Frontignac, large cluster, and parsley-leaved kinds of grape, from P. D. Cooke, Esq. Bedfordshire foundling apples, from Mr. T. Levitt, Wandsworth. Glout morceau pears, from John Ryley, Esq. Flowers of georginas, from Messrs. Chandler. Chapman's black Hamburgh grape, from John Allnutt, Esq. Mímulus *Smíthii*, from Mr. Smith, Islington. Seedling pine-apple, from Mr. R. Buck.

From the Garden of the Society. Flowers: Chinese chrysanthemums, early blush, blush ranunculus-flowered, tasseled yellow, purple changeable white, Park's small yellow, quilled white, superb clustered yellow, early crimson, sulphur yellow, small yellow Spanish brown, buff or pink, curled lilac, changeable pale buff, curled blush, tasseled lilac, and small brown-flowered. The last variety has been lately imported from China, and presented to the Society, by L. Weltjie, Esq., of Hammersmith, as new. Mr. Reeves, who has seen it in the Chinese flower-markets, says that it is the dwarfest of all the varieties; and, although the flower is small, the plant is so thickly covered with them, that there is scarcely a leaf to be seen. According to Mr. Reeves, it originally came from Japan to China. — Fruit. Apples: Sykehouse russet, Bedfordshire foundling, Cornish aromatic; Vale Mascal pearmain, an abundant bearer; Kilkenny pearmain, Waltham Abbey seedling, Franklin's golden pippin, Hughes's golden pippin, Pearson's plate, White russet, Golden russet nonpareil, Newtown Spitzemberg, King of the pippins, and Royal russet; Sam Young, a very good table apple; Downton, Golden reinette, Hormead pearmain: Golden pippin, the true old sort; the tree which produced these was reimported from

America into the collection of the Society, under the name of English golden pippin; Pomme violette, White paradise, Court of Wick, Martin nonpareil; Burn's seedling, a very handsome apple, and of good quality for its size; Citron des Carmes, Margil, Padley's pippin, Yellow bellefleur, Blenheim pippin, Fearn's pippin, Beauty of Kent; White nonpareil, a very good early nonpareil; Monstrous pippin, Barcelona pearmain, Baxter's pearmain, Winter queening, and Petworth seedling. Pears: Beurré Diel, from standards; Chaumontelle, from quenouille training; Duchesse d'Angoulême, and the same off a tree on a hawthorn stock; Passe-Colmar; Forelle, a vigorous tree as a standard, and bears well; Bezi de la Motte, Bezi de Caissoy; Bezi d'Henri, a stewing pear, and a very abundant bearer as a standard; Bergamotte Cadet, Napoleon, Urbaniste; Bon Chrétien Turc and Bequêne musqué, both stewing pears; Nelis d'Hiver, one of he very best pears, ripened on a wall, and is earlier than usual; it will also succeed as a standard. Of the pears, many sorts have come earlier to maturity than usual, probably in consequence of the dry season; for instance, Passe-Colmar, Beurré Diel, Forelle, Nelis d'Hiver, &c.

ART. VIII. *Notices of Provincial Horticultural Societies for* 1833.

WE find, from the increase in the number of newspapers sent us during the past year, as well as from information procured during our late tour, that provincial botanical and horticultural societies are steadily increasing throughout the country. We are exceedingly glad of this; because these societies will diffuse generally a taste for one of the most agreeable and humanising of pursuits, spread improved varieties of culinary vegetables and fruits, and bring into general culture many of the beautiful new hardy plants and shrubs which have been lately introduced from North America and other parts of the world. There is yet another good which will result from the meetings of these societies; and that is, the bringing into personal communication many individuals, gardeners and others, who, but for assemblages of this sort, might have for ever remained unknown to one another. In general, whatever has a tendency to bring men together, so as to enable them to think and act in masses, is favourable to human improvement. The farmer confined to his farm, and the gardener within the walls of his garden, could never have any influence on society, either in the way of disseminating agricultural or horticultural improvement; or in ameliorating the condition or manners of the two classes; but let them meet together two or three times a year, no matter for what purpose, and first thought, and afterwards action, will be the result. In cooperation with these horticultural meetings, it is gratifying to observe the universal circulation of the penny periodicals. Without saying any thing as to the direct value of the matter contained in these publications, it is sufficient for us that their tendency is to create a taste for reading: a taste which no less an authority than Sir John Herschel has observed is, of all others, the best "which can possibly be imagined for a hard-working countryman after his daily toil, or in its intervals." (See the *Penny Magazine* for Sept. 28. 1833.) An idea so gratifying has not been presented to us since we commenced the *Gardener's Magazine.*

We are happy to find that an increased attention is paid generally to the gardens of cottagers. The emulation excited by the prizes given to this class can hardly fail in producing the happiest results. We have already mentioned (Vol. VIII. p. 626.) the practice of giving silver spoons, clocks, &c., instead of medals, as one which we highly approved of; but we cannot say so much in favour of a practice which we see has been adopted in some places; viz., that of giving as prizes, shoes, coats, and other articles of clothing. The spoons, clocks, &c., are articles of luxury, which may descend, like heir-looms, from father to son, and may be possessed by any individual without his feeling any degradation in the idea, that they have been given to him. He knows that even dukes and princes are proud of the prize cups which they have won for horseracing, fine cattle, &c., and he looks upon his spoons in the same light. Articles of clothing however, convey quite a different feeling. The poor man knows that no one would presume to offer them to men of either rank or wealth, and, instead of signs of triumph, they become badges of poverty and degradation. Prizes of books, especially to young gardeners, we cannot but highly approve of; but, to give them the character of a prize, they ought to be handsomely bound, and to have some distinctive mark impressed on the back above the name; such as the words **Prize Volume**, or some other device. We are induced to mention this here, from having lately seen some volumes, in boards, given as prizes, without any thing written on them to indicate that they were such.

The increase of societies has multiplied the accounts of their exhibitions to such an extent, that we can no longer find room for even such short notices of them as we have hitherto been accustomed to give. We therefore intend, in future, to confine ourselves to such a summary of the whole, at the end of each year, as that now submitted; but, in order that the local newspapers sent us with the accounts of the meetings, &c., may not be lost to the gardening public, we shall file them as received, and bind them up, at the end of each year, in the order in which the shows are inserted in this Magazine, and prepare a manuscript index to the whole. In this state the volume will lie at the office of the *Gardener's Magazine*, at Bayswater, for the inspection of any one who may like to call there for that purpose.

ENGLAND.

BEDFORDSHIRE. — *Bedfordshire Horticultural Society. July* 26. The show of flowers was splendid, and the fruits were very fine and well flavoured. The vegetables, particularly those grown by cottagers, called forth the approbation of all present. A variety of prizes were distributed for carnations and other flowers; and for various kinds of fruits. Of the gooseberries, the heaviest red weighed 21 dwts. 18 grs.; the heaviest yellow, 20 dwts. 18 grs.; the heaviest green, 15 dwts. 1 gr.; the heaviest white, 15 dwts. 20 grs. Of the currants, the best pound of red contained 31 bunches; the best pound of white, 29 bunches; the best pound of champagne, 60 bunches; and the best half-pound of black, 156 berries. Of the raspberries, the best half-pound contained 68 berries. The principal prizes for fruit were gained by Mr. Tregenza, Mr. Furze, and Mr. Pullen. (*Northampton Mercury*, Aug. 3.)

BERKSHIRE. — *Wallingford Royal Berkshire Horticultural Society. July* 23. The green-house plants and georginas of W. Stephens, Esq., were greatly admired, as were the pansies of Mr. John Allnutt, and the picotees and carnations of Mr. Wilmer, Mr. R. Coster, and Mr. Alloway: among those shown by the latter was a very beautiful seedling purple flake. The productions of the cottagers appear to be greatly improved. (*Berkshire Chronicle.*)

BUCKINGHAMSHIRE. — *Buckingham Horticultural and Florists' Society. July* 30. Carnations, picotees, and georginas were the flowers shown, and some very fine specimens were exhibited. Some apples were shown, of the growth of the preceding year, in excellent preservation.

CAMBRIDGESHIRE. — *The Cambridgeshire Horticultural Society. April* 24. The show of flowers (particularly of auriculas and polyanthuses) was superb; and far exceeded any former exhibition. Prizes were given for pears and strawberries, and the usual spring flowers and vegetables: among the latter was a dish of 10 forced potatoes, weighing 1 lb., planted in 1833, and grown by Mr. Giddings of Hemingford. Regulations of cottagers' prizes were read; and it was stated that the gardens of those who contend for prizes must not be more than 15 poles in extent, nor more than 12 miles from Cambridge. It was also determined that those cottagers who shall have gained three prizes within the year, shall dine at the Society's expense after the next September meeting. (*Cambridge Chronicle*, April 26.)

June 12. The weather has been most singularly unfavourable for flowers: there were but few ranunculuses, and the pinks were not sufficiently forward. The show of fruit also was small; but the green-house plants made ample compensation for the deficiencies in other respects. Although several cottagers' prizes were offered, it was a matter of surprise and regret that there were no competitors. (*Ibid.*, June 14.)

July 17. This show was, upon the whole, good. The carnations and picotees were splendid. The fruit also was good, though not great in point of quantity. Prizes were distributed for fruit, among which we noticed one for May duke cherries, 57 to the pound, gained by Mr. J. Newman; one for gooseberries, 21 to the pound, Mr. Byford; for red currants, 29 bunches to the pound, Mr. Giddings; and white currants, 26 bunches to the pound, Mr. Dall. Prizes were also given for carnations, georginas, &c. (*Ibid.*, July 19.)

Sept. 11. Considering the unfavourable weather, the quality of the fruit shown was very good. In the course of the evening the prizes were distributed, consisting of two silver medals, and upwards of 72*l.* in money. The treasurer announced that Lord and Lady Hardwicke had forwarded a donation of 5*l.* to the cottagers' fund; a branch of the Society which, it is gratifying to know, is in a very prosperous condition, the principal complaint being that there are not sufficient applicants. Ten cottagers' prizes were given. (*Ibid.*, Sept. 13.)

Cambridge Florists' Society. — *April* 29. The show consisted of auriculas, the prize for the best of which (Colonel Taylor) was gained by Mr. Headley; and polyanthuses, the best of which (Alexander) was shown by Mr. Finch. (*Ibid*, May 3.)

July 18. For carnations and picotees. Some of the flowers were good, and were much admired. (*Ibid.*)

Sept. 10. This show was principally for georginas, and the evening exhibition attracted most attention. The decorations were most tastefully arranged, and produced a pleasing effect On entering the room, three well-executed arches of evergreens, thickly studded with georginas, extended from side to side. On the right, against the wall, appeared, in large characters of the same materials, "The Cambridge Florists' Society," with an anchor, star, &c. At the upper end, a magnificent crown with W. and A. on either side, beamed resplendently with variegated lamps and flowers, whilst the tables down the centre of the room were covered with a profusion of the choicest blooms; upwards of 9000 of which were consumed in the general display and embellishments. The principal prize was gained by the Rev. A. Fitch, for Widnall's Perfection. Above 80 other prizes were distributed. (*Ibid.*)

CHESHIRE. — *Stockport Floral and Horticultural Society. May* 22. This exhibition comprised a most brilliant collection of tulips, which were very tastefully and effectively displayed on several stages. The green-house plants and shrubs were extremely splendid, choice, and rare, and attracted universal admiration. The specimens of fruits and vegetables were also allowed to be particularly fine. Among the prizes awarded to cottagers, we cannot omit to notice one to Wm. Grimes, residing in Lead Yard, with a garden in Haw Fields. This man was awarded 2*s.* 6*d.* extra, in consequence of the disadvantage he is under, being a jenny-spinner, with one hand, and having a large family. (*Stockport Advertiser*, May 24.)

CUMBERLAND. — *Whitehaven Horticultural Society. May* 3. The auriculas were good, as were the polyanthuses. The hyacinths were poor, which we attribute to the rigour of the season. The pelargoniums were few in number, and, though good in their kinds, were not in maturity of flower. The bouquets were likewise few in number; but we cannot refrain from noticing the great taste displayed in the arrangement of the two which obtained prizes; each of these consisted of a light basket of wet moss, in which was disposed every variety of beautiful or fragrant flowers which the season could furnish. Among the rare native plants we observed nothing particular; nor were any very remarkable green-house plants exhibited A fine plant of Sarracènia purpùrea was shown by Mr. Elliot. Mr. Pitt had the best culinary vegetables. Apples and pears, kept from last year, were exhibited in great perfection. (*Whitehaven Herald*, May 7.)

August 9. Carnations were the principal flowers exhibited, and the greatest number of prizes were gained by the Messrs. Gird. The fruit seems, by the weight stated, to have been smaller than at some other places. The largest gooseberry (Crown Bob) weighed only 15 dwts., and it took 40 bunches of the largest red currants exhibited to weigh a pound. (*Cumberland Packet*, August 20.)

DEVONSHIRE. — *Devon and Exeter Botanical and Horticultural Society. May* 30. A great number of plants were sent by the noblemen and gentlemen in the vicinity, besides those exhibited for prizes. Among those sent by Mrs. Johnes were two seedling amaryllises, and a seedling cactus: Mr. Gifford sent some fine Brompton and German stocks, with numerous fine green-house plants. A variety of beautiful ericas and pelargoniums were sent from Mr. Granger's. From the conservatory of the Bishop of Exeter there was a splendid Erythrìna Crísta-gálli, in full flower: and a beautiful specimen of the delicate Plumbàgo capénsis. Mr. Bickford of Bickington sent various specimens of curious plants raised from seed sent to him from Van Diemen's Land. The exhibition was, however, indebted to the neighbouring nurserymen for the greater portion of its splendour. Messrs. Lucombe, Pince, and Co. sent many very fine and valuable specimens of green-house and stove plants. Of new herbaceous calceolarias they had a superb group, consisting of 26 distinct and choice sorts, several of the best being seedlings of their own raising. Their specimens of the Cáctus tribe were magnificent, amongst which were two very fine plants of the Cèreus flagellifórmis, grafted and trained in a very graceful manner. Their collection of ericas was of the richest and chastest description; and they had also a new yellow rose, having the combined odour of the *R.* odoràta and the Magnòlia, and of the most delicious perfume. We understand that this is the first time of their exhibiting it, and, being a free and perfectly hardy flower, it promises to be a very great acquisition to our collections. Messrs. L. and Co. had also a very fine collection of Scotch roses, of which a most distinguished one was the snowball; and some very fine Brabant azaleas and pelargoniums, many of the latter being seedlings. They had also 300 varieties of ranunculuses. Mr. James Veitch of Killerton exhibited many fine plants, and among them a yellow [?] Scotch climbing rose, which will grow 20 ft. in a year. Messrs. G. Dymond and Co. displayed a fine collection of pelargoniums, together with many other fine plants. The fruit was neither so large nor so numerous as it has been. The vegetables looked much better: potatoes were in abundance, and looked well; the asparagus was remarkably fine, and a bunch, from the garden of Sir Lawrence Palk, exceeded any thing of the kind we had before witnessed. The green peas also showed what Devonshire is capable of, if encouragement be but given; and the cauliflowers, Cornish broccoli, cabbages, French beans, turnips, carrots, spinach, lettuce, onions, rhubarb, artichokes, cucumbers, &c., far exceeded any thing we have hitherto been in the habit of seeing in Exeter at this time of the year. There was also a fine dish of mushrooms. (*Exeter Flying Post*, June 6.)

Devon and Exeter Floricultural Society. May 1. The room presented a most brilliant and beautiful appearance, the neighbouring gentry and nurserymen having contributed a number of splendid plants for its decoration. The prizes were for auriculas and polyanthuses. (*Ibid.*, May 2.)

The Royal Devon and Cornwall Botanical and Horticultural Society, — *July* 25. There was a most splendid show of flowers, flowering plants. fruit, and vegetables. Among the fruit, Mr. Pontey displayed not less than 100 different sorts of gooseberries; and among the vegetables was Groom's new pea, grown by J. Jarman, a cottager. A great number of prizes were distributed, and the funds of the Society were declared to be in a most flourishing state: they having now a gross income of 274*l.* 5*s.* 6*d.* Above thirty cottagers' prizes were distributed, several of which were gained by J. Jarman. (*Plymouth Journal,* Aug. 1.)

North Devon Horticultural Society.—Sept. 5. The room was most beautifully decorated with flowers arranged in various forms, and prizes were given for fruit, vegetables, and flowers. Above fifty cottagers' prizes were distributed. Nearly all the noblemen and gentlemen in the neighbourhood were competitors, and the articles exhibited were of the first description. The nurserymen's prizes were shown in a separate room; and among them were some very fine hollyhocks and French marigolds, from the nursery of Mr. Miller of Bristol. (*County and North Devon Advertiser,* Sept. 6.)

Taunton and West Somerset Horticultural Exhibition. May 22. The arrangements of the room were tastefully executed, and the attractions of the specimens were as powerful as they were various and beautiful. A *Pæònia Moútan,* from Sir T. Lethbridge's, claimed high admiration. Some uncommonly large and brightly coloured ranunculuses, from the garden at Fairwater House, were also admired, and several rich specimens of the same flower, from the grounds at West Monkton House, attracted notice. The greatest novelties in the exhibition were the superb new double Dutch anemones, exhibited by Messrs. Lucombe, Pince, and Co., being the first season of their flowering in England: they certainly surpassed in size, brilliance, and variety of colour, every thing hitherto produced in this way. They consisted of 101 distinct named varieties; and it may be said that every possible hue was here blended. The first prize was most justly awarded to these splendid flowers. Mr. J. Young had the first prize for picked specimens of about twenty very fine varieties of Azàlea, which were greatly admired; and also the first prize for nurserymen's tulips, ranunculuses, double anemones, green-house bulbs, and other products. Some handsome specimens of Azàlea were also exhibited by Lucombe and Co., and a specimen of their new hardy *Rhododéndron* hýbridum var. speciosíssimum. Mr. J. Young's collections of new herbaceous calceolarias were quite novel and very interesting. (*Taunton Courier,* May 25.)

July 3. This exhibition was one of great interest, from the uncommonly beautiful specimens of fruits, flowers, shrubs, and vegetables it presented. There were only four cottagers' prizes distributed; and as they were all gained by one individual, Betty Fry, we will lend our aid in helping to immortalise her name. (*Ibid.*, July 10.)

August 28. Grapes, pines, melons, peaches, apricots, plums, nectarines, and mulberries, profusely decorated the tables. The shrubs and flowers displayed on the occasion were of great beauty and elegant variety; and the culinary vegetables were of great size. After the exhibition closed, a sale of the prize fruit and vegetables took place, and most of the articles met ready purchasers. A great number of prizes were distributed, among which were ten to cottagers, Betty Fry being again several times successful. The plants shown by nurserymen were very splendid. (*Ibid.*, Sept. 4.)

DURHAM. — *South Durham and Cleveland Horticultural Society. April* 23. This Society, which has been only recently established, is, we are happy to learn, in the most flourishing condition. Fruit, flowers, and vegetables were exhibited, and a great number of prizes were distributed. (*Durham Advertiser,* April 26.)

May 21. There was a fine display of exotics and green-house plants, but the gardeners seemed more especially to excel in pelargoniums, for we have rarely seen such a healthy lot of plants so laden with showy and perfect flowers. The grapes, apples, strawberries, &c., taking prizes, were handed about amongst the ladies and gentlemen present, and pronounced to be in full perfection. There was also a large show of broccoli, cabbages, potatoes, cucumbers, peas, rhubarb, &c. Of the latter article there was a fine dish of the giant kind, two stalks of which weighed 2 lbs. 14 oz. There were no prizes for cottagers. (*Dublin Advertiser*, May 24.)

Essex. — *Chelmsford Florists' Society.* The first prize for carnations (Bijou de Claremont, and seven others) was gained by Mr. Pearson. Of the picotees, Mr. Wm. Bird won the first prize, with Martin's Queen Adelaide, Woollard's Miss Bacon, and four others. Prizes were also distributed for georginas, and different kinds of fruit and vegetables. (*Essex Herald*, July 14.)

Gloucestershire. — *Bristol and Clifton Horticultural Society. May* 21. A great number of beautiful plants and flowers were exhibited; among which, a very beautiful calceolaria, C. péndula, shown by Mr. Miller, was very much admired. Some fine baskets of flowers were exhibited by Mr. Taunton, including about twenty species of roses, all of which had bloomed in the open air. Numerous prizes were distributed. (*Bristol Mercury*, May 25.)

June 25. The strawberries, cherries, grapes, nectarines, and melons were of surpassing beauty and excellence; we also noticed some superb lemons, and the culinary vegetables were very fine. The show of plants and flowers has been, perhaps, surpassed on former occasions. The receipts of the day exceeded any sum that had ever been collected on any former occasion: it was also very satisfactory to find that, in consequence of arrangements made by the committee, every contributor received back his own plants and other articles exhibited, without confusion or plunder. There were a great many competitors for the cottagers' prizes. The gentlemen in the neighbourhood contributed liberally in sending flowers and flowering plants, as did Messrs. Maule and Lee, and Mr. Miller. (*Bristol Gazette*, June 27.)

Cheltenham Horticultural and Floral Society. — April 23. This exhibition, in the flowers, fruits, and plants of the season, was decidedly the best we have yet seen. The hyacinths, polyanthuses, roses, pinks, and all the floral variety of spring, were remarkably beautiful; while the heaths were of peculiar beauty and delicacy. Specimens of the cactus tribe and other plants obtained the admiration of all present. The specimens of fruit, particularly pines, strawberries, currants, and dessert apples (that appeared as if they had been just plucked from the trees), and the show of vegetables, should not pass without commendation. The auriculas, polyanthuses, and hyacinths were also remarkably fine. (*Cheltenham Chronicle*, April 25.)

May 22. The display of flowers, particularly of tulips and anemones, could not, we think, have been surpassed in any part of the kingdom. The stove and green-house plants were also remarkably fine; in fact, the excellence naturally produced by a spirit of emulation was conspicuous on every stand in the room. Numerous prizes were distributed, but none were given to cottagers. (*Ibid.*, May 23.)

June 23. The specimens were probably not so numerous as at former exhibitions, yet ample amends were made by their superior quality, and in the first and second classes conferred upon the exhibitors the highest credit. There was a beautiful collection of pinks and roses; many choice and rare exotics were arranged with the stove and green-house plants; there was also a good collection of annuals, among which were some very handsome balsams, and several magnificent cockscombs. Among the fruits, the attention and admiration of the numerous assemblage of the *beau monde* were peculiarly attracted by the display of grapes, and by two plates of strawberries (from the gardens of Henry Norwood Trye, Esq., of Leckhampton Court, and of Mr. T. French), some of which measured 6 in. in circumference: several plates of ripe currants and raspberries were exhibited, some of which deservedly gained extra prizes. The vegetables surpassed any we remember to have seen at former shows; a convincing proof that societies of this nature tend to improve the culture and quality of these necessary productions, by exciting a spirit of emulation among the cultivators. There were three cottagers' prizes. (*Cheltenham Journal*, July 1.)

July 23. Carnations, picotees, and georginas were the principal articles exhibited. (*Ibid.*, July 25.)

Sept. 17. This was the best show of the season. The display of fruit was beyond all praise, and we question whether finer pines, melons, grapes, peaches, nectarines, plums, apples, and pears have been exhibited by any similar society in the kingdom. The stove and green-house plants and annuals were also remarkably fine. Nearly 2000 specimens were exhibited, and numerous prizes were awarded. (*Cheltenham Chronicle*, Sept. 19.)

HEREFORDSHIRE. — *Hereford Horticultural Society. April* 30. Many beautiful seedling auriculas and polyanthuses, flowers of Wistària Consequàna, and a plant in pot of Magnòlia conspícua, in fragrant bloom, graced the florists' department, in addition to the usual supply of well-known prize flowers of auricula, polyanthus, hyacinth, pansy, &c. In vegetables, a subscriber exhibited an ingenious method of raising early peas, by sowing them in a little soil between tiles, and keeping them under glass till the weather admits of their being transplanted into the open ground, which is done with facility: the plants shown were in a growing state, 18 in. high, supported by sticks, fully exemplifying the plan, which the subscriber stated he had practised some years, with invariable success. A subscriber also exhibited in a pot a strong plant of O'xalis crenàta, about a foot high. The apples were beyond all praise; the white broccoli was the largest and best ever exhibited here, particularly the brace to which the first prize was awarded, being about 9 in. in diameter, and in the nicest epicurean state. The other broccoli were excellent, as were also the cucumbers, cabbage, potatoes, French beans, rhubarb, sea-kale, lettuces, &c. Numerous prizes were distributed for auriculas, polyanthuses, hyacinths, &c., but we did not observe any cottagers' prizes. (*Hereford Journal*, May 8.)

May 21. The tulips were excellent, and some of them, although astonishingly large, were finely broken. Among the other classes appeared a full supply of stove, green-house plants, &c., ericas, Cèreus Jenkinsòni, calceolarias, seedling pelargoniums, Vieusseùxia glaucòpis, new white giant stock, Æ'sculus ròsea, new scarlet thorn, &c. &c.; and, although last, not least, but of tremendous size, Dally's new giant rhubarb. Among the prizes for tulips, we observed most frequently the names of R. J. Powell, Esq., and Mr. P. Baylis. (*Ibid.*, May 29.)

June 25. Several very beautiful varieties of Calceolària, Schizánthus, &c., were exhibited. That universal favourite and queen of flowers, the rose, appeared in its wonted splendour, fragrance, and quantity; and, among the numerous specimens of pinks, many of the choicest description were shown; but, of ranunculuses, only two blooms were sent in, and those of an inferior kind; indeed, the ranunculuses failed generally throughout the kingdom this season, which was the case also two years ago. The prize pine-apple was a fine specimen of the Providence variety. The melons were high-flavoured, though not numerous. The strawberries were abundant. The vegetable department was not fully supplied; but premiums were only offered for cauliflowers, at this exhibition. (*Ibid.*, July 3.)

Sept. 24. The grand stand was decorated with a beautiful display of green-house and other plants. The stage for fruit and vegetables was remarkable for the variety and excellence of the apples and pears; of the former 100 plates of different kinds, comprising culinary and dessert fruits; and about 30 plates of the latter, all of the finest sorts, were exhibited, There were also remarkably fine grapes, peaches, nectarines, China guava, &c. &c. The vegetables comprised onions, celery, carrots, beet, and broccoli. The peaches and nectarines were a short supply, but fine specimens. The georginas and new German asters produced such a display as was never before witnessed here, covering the pyramidal stand, except a space at the top, occupied by half a dozen potted plants. Among the georginas many fine seedlings were observed, and about fifty spotted and striped, two of which were of a splendid crimson colour, each petal being tipped with pure white, the effect of which it is scarcely possible to conceive without witnessing it. There was a plate of fruit of *Psídium Cattleiànum*, a native of China, which deserves, and, when more disseminated, will obtain, a place at the dessert. (*Hereford Journal*, Sept. 25. and Oct. 2.)

Ross Horticultural Society. — *May* 22. The supply of tulips was somewhat scanty, but some fine specimens were exhibited. The first prize for tulips was gained by Polyphemus, shown by Mr. W. C. Cocks. The prizes for heaths were all gained by one lady, Miss Trusted. (*Ibid.*, May 29.)

June 19. The grand stand never displayed a richer galaxy of foliage and bloom, and the long stage was amply covered with roses, pinks, &c., of the finest qualities. The specimens in strawberries were excellent, and those which obtained the first prize, grown by Mr. James Rudge of Weston, were astonishingly large, and perfectly ripe: the plate contained three dozen berries, and the fruit weighed upwards of 3 lbs., and several of the berries exceeded 1¼ oz. in weight. The specimens ticketed and entered amounted to 607. (*Ibid.*, June 26.)

HUNTINGDONSHIRE. — *Huntingdon Horticultural Society. May* 1. Prizes were distributed for auriculas, polyanthuses, and hyacinths; also for fruit and vegetables. The heaviest red gooseberry, the roaring lion, weighed 20 dwts. 1 gr.; the heaviest yellow, Piggott's leader, 14 dwts. 17 grs.; green, troubler, 14 dwts. 2 grs.: white, eagle, 15 dwts. 10 grs. Of the white and red currants, the finest were 26 bunches to the pound. (*Cambridge Chronicle*, May 3.)

KENT. — *Tunbridge Wells Horticultural Society.*—*Sept.* 26. The display of fruits, flowers, and vegetables was splendid. Of the flowers, those which attracted most attention were the georginas, of which there was a most brilliant show; and the very beautiful stove and green-house plants sent by Mr. Joseph Wells, gardener to William Wells, Esq., of Redleaf. Among these were some beautiful specimens of calceolarias and schizanthus; also some very fine treviranas, the flowers of which were remarkably large; and a superb specimen of Brunsvígia Josephìnæ. Mr. Gilbert of Frant had eighty sorts of dwarf cockscombs, with a variety of seedling georginas, &c.; and Mr. Cameron exhibited 250 sorts of georginas. Many other plants well worthy of notice were shown, (*Brighton Gazette*, Oct. 3.)

LANCASHIRE. —*Lancaster Pink and Ranunculus Society. June* 25. The display of pinks was greater and better than might have been expected; and the collection of roses, among which was a fine specimen of the double yellow rose, was numerous and fine. The ranunculuses were few and poor; but these plants have flowered most shyly this year, in almost every garden in our neighbourhood; while the few flowers that came to perfection have been over some time, and others were destroyed by the heavy and frequent showers. The erythrina, to which the second prize for green-house plants was awarded, was a remarkably fine and striking plant, in full flower. Several small bouquets, disposed in separate glasses, upon the table at the end of the room, were much admired; as was also a China bowl, filled with a variety of Scotch roses. There were a few melons, and several plates of grapes; and fine strawberries, principally Keen's seedling, so justly a favourite. (*Lancaster Gazette*, June 29.)

Lancaster Floral and Horticultural Society. — *Sept.* 25. Some very fine specimens of georginas were exhibited, which were divided into five classes, according to their colour. Prizes were distributed; and we observed that

Messrs. Conolly and Son were among the most successful competitors. The fruits were particularly apples, so various and numerous as to induce the committee to abandon all attempts to arrange it. We noticed not less than fifty-two different specimens of apples sent by the patron of the Society, the Rev. T. Mackreth, all grown in his grounds at Halton: they comprised all the new and most excellent kinds, and such as many persons feared could not be grown in this northern climate. We noticed that delicious little pear, the seckle, one of the very best of the American varieties. A short account was given by this gentleman of the respective properties of each specimen: a very useful plan, which we were glad to see adopted by others, particularly Mr. Matthias Saul, who exhibited upwards of forty different sorts of apples, grown in his own orchard at Skerton, all of the newest and best kinds; among his selection of fruit we noticed the beurré d'Aremberg and the beurré rance, two of the best pears of this, or, perhaps, any other country. The exertions of this individual to introduce good fruit into this neighbourhood is deserving of great praise. We understand it is his intention to offer cuttings of any of his apples or pears for sale at very moderate prices: this will afford an opportunity to others of cultivating the most approved kinds. Very fine specimens of the Gansel bergamot, the brown beurré, and the Chaumontelle pears, were sent from Ashton Hall, by the Countess of Lincoln. Some very fine specimens of apples were sent by Mr. Eidsforth of Poulton Hall, Mr. Salthouse of Scotforth, &c.; and a plate of the finest nonpareils we ever saw were grown in Dalton Square, in this town, in the garden of Mr. Eastwood. Mr. Walmsley was commissioned by the Society to select specimens of the different kinds of apples sold in the Lancaster market; and he produced between twenty and thirty sorts, all very large and fine in appearance; but many of them, we think, were not of much value. Mr. S. Hinde exhibited half a dozen apples of the Easter pippin, that had been gathered in his garden in November, 1832, in a very high state of preservation. This is a very valuable kitchen apple, and deserving of an extended cultivation. Some very fine and curious specimens of different kinds of potatoes, such as are grown at Algiers, on the Rhine, and in France, were shown by Mr. Knowlys of Heysham. We cannot speak as to their respective merits: they were described as very productive; and, we have no doubt, the owner, to whom this neighbourhood is greatly indebted for the introduction of many new and excellent kinds of vegetables, will inform the public if they should be found to bear the severities of this climate. We omitted to mention, in its proper place, two stands of beautiful flowers, arranged very tastefully, and consisting of all the different kinds of new annuals and other autumnal border flowers: they were, we understand, from the garden of the Rev. T. Mackreth. The new green-house plant Tropæ'olum tricolòrum we also observed; it was the property of Mrs. Wm. Hinde. (*Ibid.*, Sept. 23.)

Liverpool Floral and Horticultural Society. — *Sept.* 25. This was an extra-show for georginas, fruits, flowers, and vegetables. Mr. Skirving, the Messrs. Whalley, and Mr. George Cunningham exhibited some very fine specimens of georginas; and the former gentleman (Mr. Skirving) gained twenty-two prizes. Mr. James Howard gained an extra-prize for a very beautiful seedling; having a white stripe in the centre of each petal, with brilliant scarlet on each side. (*Gore's General Advertiser*, Oct. 3.)

Manchester Botanical and Horticultural Society. — *Sept.* 30. The last exhibition of this Society, for the season, was held at the gardens. Fruits and vegetables only were exhibited at this meeting, and these were arranged on tables in the first two green-houses. The fruits, particularly the apples, were fine and choice; but the vegetables were somewhat inferior to those of last year. Of the gardens, we can add nothing more than to state the progress of the growth of the trees, which, in the arboretum, are beginning to display, by their blending and varied foliage, the scientific manner in which they are planted. The great variety of the willow family, dipping their drooping boughs into the brook which meanders through the lower part of the gardens, is very interesting. The alpine plants in the rockery become every year more and more pleasing; the mosses, &c., fast covering the craggy stones of this wild scenery in miniature. A bed of handsome georginas, mixed with China asters, on each side of the conservatories, was very attractive. The conservatories themselves contained nothing particular in bloom, but the plants looked healthy and vigorous. Altogether, the gardens were clean and in excellent order; and their condition reflects much credit on the industrious curator, Mr. Campbell. (*Manchester Guardian*, Oct. 5.)

LEICESTERSHIRE. — *Leicestershire Floricultural Society.* This show was for carnations and picotees. The most successful competitors were Mr. Wm. Thompson and Mr. T. Deacon. (*Weekly Dispatch.*)

MIDDLESEX. —*The North London and Finchley United Society of Florists. April* 24. This was an exhibition of auriculas: some fine flowers were shown, and several prizes were awarded.

July 23. This was a show for carnations.

The Metropolitan Society of Florists and Amateurs. — *Aug.* 13. This show was merely for georginas.

Aug. 21. Some of the georginas exhibited at this show, particularly those of Mr. Widnal of Granchester, were extremely beautiful. Mr. Brown of Slough showed a large collection of heartsease; and Messrs. Chandler, Mr. Hopwood, and Mr. Dennis exhibited splendid collections of flowers.

NORFOLK. — *Diss Horticultural Society. April* 18. The exhibition of fruits and vegetables was excellent; but we have seldom observed the flower-tables so thinly covered. The specimens which chiefly attracted our notice were, a dish of Keen's seedling strawberries, sent by James Flower, Esq., Eccles Hall; mushrooms, kidneybeans, cucumbers, and potatoes, by G. St.V. Wilson, Esq., Redgrave; several sorts of apples, by R. Gamble, Esq., Wortham; asparagus and sea-kale, by Mrs. Harrison, Palgrave; broccoli and celery, by N. W. Ridley Colborne, Esq., West Harling; and thirteen stalks of rhubarb (not exhibited for a prize), the produce of a single root, measuring from 3 ft. 9 in. to 4 ft. 3 in., and several weighing from 13 oz. to 17 oz. The cucumbers, of which there were several brace, were of the best description. The cottagers' table was exceedingly well filled, and fifteen prizes were distributed among them. (*Bury and Suffolk Herald*, April 24.; and *Bury and Norwich Post, and East Anglian*, April 24.)

Lynn Horticultural Society. — *June* 26. The Hùme*a*, the Gesnèr*ia*, and all the plants contributed by Mr. Allen excited great admiration; as did the Hòy*a* from Hamond Lodge; the oleanders and ericas from Wereham Hall; the Salpiglóssis and Alstrœmèr*ia*, &c., from Hunstanton; and the collection of balsams, pelargoniums, &c., from Stowe Hall. Some of the vegetables, too, were remarkably fine, particularly the cauliflowers and Windsor beans from Mr. Rolin. Upon the cottagers' tables were some good French beans, white currants, cucumbers, &c. (*Bury and Norwich Post, and East Anglian*, July 13.)

Norwich Horticultural Society. — *June* 26. Among the flowers, Mrs. Mackie's roses and hybrid calceolarias were remarkably fine, and excited great admiration. Several new and well-flowered pelargoniums, a collection of pinks, and a number of ericas and other green-house plants, were also sent with unsparing liberality by Mrs. Mackie, who still adheres to her resolution of refusing to accept the Society's prizes in return for her support. [This lady, we regret to learn, is since dead. Our readers will find a short biographical notice of her in our Obituary.] A curious little plant of Ceropègia stapel*iæfórmis*, raised by Mr. Hitchin, and now flowered for the first time, was exhibited by him, and received the large silver medal; and the same prize was adjudged tó Mr. Middleton, for a collection of plants of the *C*áctus tribe, the effulgent brilliancy of whose petals eclipsed every thing else in the room. There were a great many pinks, some from members of the Norwich Florists' Society [We should be glad to have regular notices of the meetings of this Society]; and others from Mr. Toll, Mr. H. Newton, Mr. Wilson, Mr. Reynolds, and Mr. Asker. The last-mentioned gentleman also sent a stand with twenty sorts of China roses from four bushes, and twenty sorts of other roses; and another stand containing seventeen sorts of roses from one bush. There were also a great many beautiful irises, especially some sent by Mr. Fairburn. The fruits were fine; there were a few melons, and a brace were to be seen on one of the cottagers' tables. Strawberries were abundant and enormous, Wilmot's superb carrying away the palm for size; but the Carolinas, and Downtons, and Keen's seedlings beating them in delicacy and richness of flavour. W. Brereton, Esq., of Britton, sent two large and handsome vines (the white muscadine), in pots, with about thirty pendent bunches of well-ripened grapes growing on them; and some splendid strawberries. Mr.Tipple of Wymondham obtained a small silver medal for some good bunches of black Hamburgh grapes; and Mrs. Ives's gardener had the same prize for some black prince. There were also many varieties of other fruits and vegetables, especially some of the very best ash-leaved kidney potatoes, sent by Mr. Vince, that have ever been exhibited. The cottagers' tables were covered; and we no longer have to regret that so few of this class are induced to come forward. They have found out that the Society are willing to encourage them, and they have wisely profited by the discovery. No less a sum than 10 guineas was given to this class, at the last Meeting, for nearly 100 prizes; and an offer from the chairman at the dinner, John Longe, Esq., of " a set of tea china to the value of 2*l*., and two volumes of the *Saturday Magazine*," to the cottager who, at the end of the season, shall have obtained the greatest number of prizes for fruits and vegetables; and the same prize to the cottager who shall have obtained the greatest number of prizes for flowers during the year, cannot fail to operate as a still further inducement to encourage the industrious habits of this portion of our contributors. (*Bury and Norwich Post*, July 3.)

NORTHAMPTONSHIRE. — *Northamptonshire United Horticultural Society. April* 18. The following articles were particularly deserving of notice: — New golden cress, a very superior salad, from Earl Pomfret. Ericas, some fine specimens, from W. J. Dunkley, Esq. *R*ìbes sanguíneum, a very beautiful specimen, from Earl Pomfret. Some superb specimens of Azàlea índica álba; and *C*áctus Vandèsii, E'pacris impréssa, and numerous other fine plants, from Mr. Atkins. Some very fine grapes, strawberries, pines, geraniums, and other beautiful specimens of plants, &c., from Lord Southampton. The auriculas and hyacinths were particularly beautiful. A fine Camélli*a* japónica álba, and other plants, from the Hon. Mrs. Cockayne Medlycott. Black hyacinth, cucumbers, strawberries, forced flowers, and numerous other fine specimens, from E. Bouverie, Esq. There were also some very good broccoli, new potatoes, forced rhubarb, and numerous other vegetables and fruits. (*Northampton Mercury*, April 26.)

June 21. There were some noble specimens of the *C*áctus tribe; one, especially, from Lord Southampton, which excited great attention. A beautiful Fúchs*ia* grácilis, from E. Bouverie, Esq., was also much admired. The pelargoniums were very numerous and beautiful. Among the new plants, the yellow Noisette rose, the *Petùnia* phœnícea, and Schizánthus retùsus, deserve particular mention. All the fruits were remarkably fine; pines, grapes, and strawberries (one plate, from E. Bouverie, Esq., containing eighteen to the pound); and a plate of beautiful apples, from Mrs. Hughes. (*Ibid.*, June 22.)

July 25. The show both of flowers and fruit was remarkably brilliant. Prizes were given for roses, carnations, and georginas; and Messrs. Martin, Halliday, and Atkins appear to have been the most successful competitors. The articles exhibited for the cottagers' prizes were excellent. (*Northampton Mercury*, Aug. 3.)

July 30. Prizes were given for carnations and picotees; and Mr. Messenger and Mr. Halliday were the most successful competitors. (*Ibid.*)

NORTHUMBERLAND. — *Newcastle Botanical and Horticultural Society.* Numerous exotics were exhibited; and some very fine vegetables and fruit. The committee awarded the silver medal to Mr. W. Kelly, gardener to A. Donkin, Esq., Jesmond, for an essay on the cultivation of Trevirà*na* coccínea, delivered in by him at the Meeting held in October last. W. Falla, Esq. F.L.S., in addition to many preceding donations, has presented to the library of this Society the second edition of the *Catalogue of Fruits cultivated in the Garden of the Horticultural Society of London at Chiswick.* (*Newcastle Courant*, March 8.)

May 7. The best auricula was Grimes's privateer, shown by Mr. Morris; hyacinths, polyanthuses, &c., were also exhibited. Twelve varieties of seedling apples were exhibited by Mr. Michael Hall of Beacon Lough, in a state of high preservation; and two large dishes of baking and eating apples, in excellent order, from J. C. Anderson, Esq., Point Pleasant. The pelargoniums and hyacinths were very beautiful. (*Ibid.*)

June 7. A great variety of flowers, fruit, and vegetables. There were six heads of belle et bonne lettuce; and seven extremely large stalks of the giant rhubarb, weighing 24 lbs., from the garden of Mr. Henry Newton, nurseryman, Newcastle. The pelargoniums from Mr. Clarke's were the most beautiful we ever witnessed, and made a splendid addition to the show; and for which the judges awarded him a silver medal. The *Crì*num pedunculàtum, from Mr. Losh, was nearly 5 ft. high, and was the most regular and beautiful plant ever exhibited here. (*Ibid.*, June 15.)

Hexham Botanical and Horticultural Society. — *May* 11. A great variety of flowers, fruit, and vegetables were exhibited. Among the prizes, one was awarded to Mr. Joseph Robson, sen., gardener, Hexham, for the best four stalks of rhubarb (red Goliath); quite superior to any we have seen, and even larger than the esteemed Winlaton sort. (*Ibid.*)

The Morpeth Florists' Society. — *May* 6. A number of auriculas and hyacinths were exhibited, and various prizes were distributed. (*Ibid.*)

May 30. Prizes were given for tulips. (*Ibid.*)

STAFFORDSHIRE. — *Lichfield Florist's Society.* This exhibition was principally for carnations and picotees. Some fruits were shown, among which was a new grape called Grange's seedling.

Wolverhampton Horticultural and Floricultural Society. — *July* 29. Carnations and picotees were the principal articles exhibited. Of the gooseberries, the heaviest red, the roaring lion, weighed 22 dwts. 18 grs.; white, eagle, 20 dwts.; yellow, gunner, 19 dwts. 12 grs.; and the green, peacock, 19 dwts. 6 grs.

August 5. This exhibition was also for carnations, picotees, and gooseberries. The largest red gooseberry, the roaring lion, weighed 23 dwts. 12 grs.; white, eagle, 23 dwts. 10 grs.; yellow, gunner, 19 dwts. 6 grs.; and the green, peacock, 21 dwts. 6 grs.

SUFFOLK. — *Bury Horticultural Society. April* 30. Unpropitious as the season has been for the productions of the garden, this exhibition was truly gratifying; and the utility of the institution in stimulating the ambition of the amateur, the professional gardener, and the cottager, is every year more plainly manifested. Although the supply of fruits was small on this occasion, it included some admirably preserved apples of the finest description, amongst which we may especially mention the cottagers' nonpareils as some of the best we ever saw. There was one dish only of excellent strawberries. (*Bury and Norwich Post*, May 8.)

SURREY. — *Dorking Horticultural Society.* This newly established and flourishing Society, we are happy to find, has rapidly increased; and now reckons nearly all the surrounding gentlemen and gardeners among its members. — *J. W. Dorking, April* 19.

WARWICKSHIRE. — *Birmingham Botanical and Horticultural Society. June* 19. and 20. This was the first public exhibition of this Society; and about 400 articles were shown. Many of these were from the nursery of Messrs. Pope and Sons, Handsworth, and the remainder from the gardens of numerous noblemen and gentlemen in the neighbourhood. The plants from the gardens at Edgbaston were not shown for competition. They were upwards of two hundred and fifty in number, comprising stove, green-house, alpine, and herbaceous plants, the greater part of them in flower. With the exception of a few, which were mixed with the others on the circular stands in the middle of the room, they were arranged on the right hand stand by themselves. A plant of *Petùnia* phœnícea, 5½ ft. high, stood on the top of one of the circular stages, and an Eriophýllum cæspitòsum, 3 ft. in diameter, spread over the top of the other. Among those on the stage appropriated to the plants from the garden were, Schizánthus Hoókeri, Andrómed*a* *b*uxifòlia, *A*nagállis Webb*iàna*, Béllium crassifòlium, Begòn*ia* Sell*òii*, Cinerària láctea, Collòmia lineàris, Cypélla Herbért*i*, Digitàlis laciniàta and mìnor, Hunnemánn*ia* *f*umariæfòlia, Isopléxis canariénsis, Linària supìna, *L*ìnum sp. nova, from Chile, 1832, Leptostélma máximum, *L*ýchnis pyrenàica, Mutís*ia* supérba, *Œ*nothèra serrulàta, Scopària flàva, *V*erbèna radìcans, &c. A large plant of *H*eraclèu*m* sp. (cow parsnep) stood upon the floor, and was the object of considerable attention. The Society's plants formed of themselves a splendid and highly interesting collection; and served to display to full advantage the skill and scientific culture of Mr. Cameron, the much respected curator. No money prizes being offered at this show, a subscription was raised, chiefly among the members of the committee, for the purpose of presenting to those gardeners who distinguished themselves on the occasion some testimonial of approbation. Six gardeners were selected by the judges; and suitable presents, with inscriptions, are in course of preparation, and will be transmitted to them as soon as they are completed. (See p. 462.) (*Aris's Birmingham Gazette*, June 24.)

August 21. and 22. The awning for the reception of plants was raised over one of the walks in the lower part of the gardens, by which the full extent of the terrace was left for the company to promenade, and the conservatory and houses, before partially obscured, were seen to full advantage. Owing to the advanced period of the season, the variety of stove and green-house plants was not so numerous, but the *coup d'œil* on entering the awning far surpassed either of the former exhibitions, from the brilliant display of fine tender annuals and georginas, of which latter there were upwards of seven hundred glasses. The number of cut specimens of hardy plants also contributed much, from their variety of colour, to aid the general effect. There was an extensive and choice collection of fruits and vegetables, of which there were upwards of two hundred and forty dishes. (*Ibid.*, August 26.)

Deritend and Bordesley Floral and Horticultural Society. — June 20. The display of roses was most extensive and beautiful; at least one thousand specimens graced the flower-stand, for a large portion of which the Society was indebted to the liberality of the Earl of Bradford and Mr. Waddell of Small-heath. A large variety of choice pinks were exhibited; but the ranunculuses were few in number. A rare and splendid Gloriòsa supérba, from John Willmore, Esq., of Oldford, supposed to be the only specimen that has bloomed in this part of England during the last fifteen years, adorned the centre of the first prize stand, and commanded universal admiration. Four hundred specimens from Messrs. Pope and Sons of Handsworth, among which were the finest collections of herbaceous plants, pelargoniums, seedling pinks, roses, &c., greatly increased the beauty of the stands; and many of their fine specimens were duly appreciated by the judges, a large portion of the prizes having been awarded to them. The nosegays and groups of flowers were very numerous; and among them was a fine one from Lord Hood, and a superb one from Mr. Smith, the gardener of James Woolley, Esq. The strawberries were matchless in quality, and their tempting fragrance was the subject of general remark. The cherries and grapes were very fine, and the melons from Mrs. Taylor of Moseley Hall attracted much attention. Mr. Sadler, the gardener of Sir Charles Throckmorton, carried away a great number of prizes for fruits and vegetables. The cucumbers were very fine; and one from Mr. Fletcher of Hockley was much admired. Mr. Kendall emptied his green-house and pits of all their finest specimens, and was more than usually successful. The cottagers' and artisans' stand presented a most gratifying display; and the committee were as liberal as their funds would allow in giving rewards for the most approved specimens. (*Aris's Birmingham Gazette*, June 24.)

WILTSHIRE. — *Wilts and General Horticultural Society. April* 9. Never were plants and flowers exhibited in greater beauty; and the thanks of the city and county are due to the gentlemen's gardeners for the very great perfection to which they have brought their productions. Many prizes were distributed; and we observe that Mr. Hughes, gardener to C. B. Wall, Esq., Mr. Dodd, gardener to Col. Baker, and Mr. Christie, gardener to the Earl of Radnor, were among the most successful competitors. Several cottagers' prizes were awarded. (*Salisbury and Winchester Journal*, April 15.)

June 18. Numerous prizes were awarded, among which were twelve for cottagers. A stalk of the giant rhubarb, which weighed nearly 2 lbs., was shown by J. T. Thring, Esq. (*Ibid.*, June 24.)

WORCESTERSHIRE. — *Worcestershire Horticultural and Floral Society. Sept.* 18. Pines in profusion from the Marchioness of Downshire's, Sir C. S. Smith's, Rev. Mr. Harward's, Captain Vernon's, and others, appeared in the highest possible state of perfection, and were universally admired. Peaches and nectarines were not quite so plentiful; but some very fine specimens of grapes attracted notice, as well as some curious varieties of plum. One of the latter, from Dr. Prattenton's, a seedling that had never been budded or grafted, elicited much remark. To enumerate the endless varieties of apple and pear that literally crowded the tables, we find to be impossible: we can only say, that, with such a display in view, Worcestershire will not easily give up the palm as the land of apples and pears. Its inhabitants might now, with as much propriety as Michael Drayton says their ancestors did at the battle of Agincourt, display for their banner, — " Worcester — a pear tree laden with its fruit." We ought to notice that two fine young trees of the Court of Wick pippin, from Mr. Eaton's, in full bearing, graced the northern end of the hall. (*Berrowe's Worcester Journal*, Sept. 19.)

YORKSHIRE. — *Doncaster, Retford, and Bawtry Horticultural Society. April* 11. This was the first public exhibition of this Society. The room in which the fruit, vegetables, and plants were arranged was decorated by Mr. Shooter, gardener to the Dowager Lady Galway, in a tasteful manner, with festoons of evergreens, &c. All the stages for the reception of the plants were fully occupied; and the interest which prevailed on the occasion was heightened by the liberality of Lady Galway, who furnished several specimens of beautiful and rare plants. A beautiful collection of ericas was exhibited by Mr. Duncan, gardener to Lord Althorp; but they had not been in his possession a sufficient time to obtain a prize. The first exhibition of this Society has commenced in so auspicious a manner, as to warrant the conclusion, especially if, as we hope will be the case, the patronage of the neighbouring families be still further extended, that the future exhibitions will prove the source of considerable utility, gratification, and attraction. (*Doncaster, Nottingham, and Lincoln Gazette,* April 19.)

Hull Floral and Horticultural Society.—May 6. and 7. Many beautiful flowers were exhibited. The prizes for the two best auriculas, Flora's flag and Stretch's Alexander, were both gained by Mr. D. Brown. (*Hull and Rockingham Gazette,* May 11.)

May 23. This was a show of tulips, and some very fine flowers were exhibited. The prize for the best, incomparable bienfait, was adjudged to Mr. William Burman. (*Ibid.,* May 25.)

June 17. The ranunculuses exhibited at this show were not so numerous as on some former occasions; which circumstance was owing to the long continuance of dry weather, which is so unfavourable to these flowers. We had the pleasure, however, of witnessing some of a new and rare kind, several of which had been raised from seed by the amateurs of this town. The premium for the best flower, Benjamin, was adjudged to Mr. Beecroft. (*Ibid.,* June 22.)

July 1. This exhibition was for pinks and roses. The premium for the best pink, Miss Beresford, was gained by Mr. T. Simpson; and that for the best rose, the moss Provence, by Mr. R. Oglesby. (*Ibid.,* July 6.)

July 30. This exhibition was in the highest degree splendid. The carnations and picotees, we venture to say, could not be excelled in any part of the kingdom. The amateur in flowers was not less gratified with them, than with a display of rare curious German stocks, consisting of twenty-seven varieties of as many different hues. The grapes, melons, and gooseberries were also fine, and did great credit to their respective owners. We have sincere pleasure in observing that the taste for horticulture is increasing in this neighbourhood. (*Ibid.,* August 3.)

Leeds Exhibition of Carnations and Picotees.— August 5. Some fine flowers were exhibited by B. Ely and S. Peace. (*Ibid.,* August 16.)

Sheffield Horticultural Society.— May 22. The principal attraction at this exhibition (the ladies apart, of course) were the plants sent from the gardens of Earl Fitzwilliam, which were considered by the judges as of the rarest kinds ever exhibited. Plants were also received from the garden and conservatories of the Duke of Devonshire, Lord Wharncliffe, the Rev. W. Bagshaw, B. Ward, Esq., Messrs. Fisher, Holmes, and Co., Miss Marshall, &c., all of which were pronounced of the most superior sorts. The tulips were also very attractive; but the display of fruits and vegetables were not equal to those of former exhibitions. A plate of very fine Keen's seedling strawberries was sent from Chatsworth. (*Sheffield Mercury,* May 25.)

West Riding Horticultural Society.— July 18. The exhibition of fruits, flowers, and vegetables was unusually fine and extensive. Over the music gallery we noticed a very tasteful design, composed with hardy flowers from the gardens of G. Wentworth, Esq., of Woolley Park, representing the royal arms, with the inscription, "Auxilio vigimus vestro" (We flourish under your protection). The platform exhibited its usual decorations, among which was a very splendid hardy bouquet, containing upwards of 350 sorts of flowers, from the gardens of Mr. Barratt of Wakefield. Among the flowers were Tropæ'olum màjus var. atrosanguíneum, or blood-coloured nasturtium, William Barratt, Wakefield; Poívre*a* coccínea, S. Appleby, Rev. J. A. Rhodes; and a beautiful variety of marigolds, from Mrs.

Fawkes. The show of georginas, for the season of the year, was of the most splendid description, amounting to about 300 varieties. One of the most beautiful of the new annuals, the Schizánthus Hoókeri, gained the prize for the best exotic annual. Among the green-house plants were, *Petùnia* phœnícea, *V*erbèna Lambérti, *V.* venòsa, Salpiglóssis Barclay*àna*; Oxylòbium cordifòlium (new variety), and *O'*xalis Déppei, with a variety of others newly introduced. The different kinds of culinary vegetables in the exhibition were remarkably fine. (*Wakefield and Halifax Journal*, July 20.)

Sept. 25. The decorations of the room were unusually tasteful and elegant. In front of the music gallery was a stag's head of immense size, between the antlers of which were suspended two very large bunches of Syrian grapes, the whole being surrounded by a beautiful design of flowers, and surmounted by the inscription, "Numbers, chap. xiii. verse 23." This decoration was sent by A. Heywood Esq., of Stanley. The decorations in front of the platform at the head of the room, as well as the festoons of flowers which were suspended along its sides, were furnished by Mr. William Barratt, nurseryman, of Wakefield, and were decidedly superior to the ornaments on former occasions. We noticed the following plants among those sent by Mr. Joseph Cooper, botanic gardener to the Right Hon. Earl Fitzwilliam; the Notelæ'a punctàta, in flower, supposed to be the first time of its flowering in England. The Cymbídium lancifòlium and *N*epénthes distillatòria, or pitcher plant; a very fine specimen of the Crìnum amàbile, from Major Farrand of Arden Grange; also the *P*sídium Cattlei*ànum*, or purple-fruited guava, from the gardens of the Rev. J. A. Rhodes; and, from the same place, the Vernòn*ia* axilliflòra, a plant and specimen of a cone of Bánks*ia* grándis, from New Holland. A new species of *S*álvia was exhibited by the Rev. S. Sharp, which he brought, in July last, out of the county of Hertford. It was raised from seed sent from Corfu; and it is supposed that until this year the plant was unknown in this country. Mr. Thomas Belton, gardener to C. Winn, Esq., Nostell Priory, exhibited a specimen of a rare fungus, *A*gáricus nóbilis; likewise three fine specimens of dwarf cockscombs. The vegetables exhibited were of the very first description, consisting of almost every production of the garden. A medal was exhibited by Mr. Appleby, gardener to the Rev. J. A. Rhodes, which had been presented to the West Riding Society, to be given to those gardeners who had most distinguished themselves at its periodical meetings. This is the third medal which has been given by the London Society to the West Riding Horticultural Society. Mr. Major exhibited a model of a machine for warming stoves, green-houses, frames, or rooms, with hot water, which excited some attention, and can be furnished at a very trifling expense. The cucumber exhibited by J. Catton was grown from seed produced from a cucumber raised this year, sown in January: its length was 22 in.; it was one of the specimens that gained the prize. Many other very beautiful specimens were exhibited from the gardens of the gentlemen in the neighbourhood; and numerous prizes were distributed. (*Ibid.*, Sept. 27.)

York Floral and Horticultural Society. — The appearance of the hall resembled that of one vast conservatory. The most magnificent and rare plants abounded, and flowers of every varied hue shed their perfumes around, dispensing fragrance far and wide. A table in the centre of the hall was covered with pelargoniums, of which there were at least seventy different species, many of them of the rarest and most beautiful kinds. On the right hand, a great number of charming exotics were tastefully arranged; and on the left was a fine display of vegetables and fruit which had been shown for prizes. There was a rich profusion of peas, cucumbers, rhubarb, salad, potatoes, gooseberries, &c.; and the prize vegetables were particularly fine specimens. The prize flowers, bouquets, and stove plants were arranged on a cross table at the bottom of the hall: these were admirable specimens of the various kinds. Two gigantic bouquets were placed at the back of this table; they were furnished by Mr. Wood, gardener to Messrs. Backhouse, and by Mr. Clarkson; were each upwards of 10 ft. high; and contained a vast number of varieties. Several other handsome bouquets ornamented the room. There was also a variety of handsome stove and green-house plants, and above forty varieties of seedling calceolarias. Prizes were given for tulips, pelargoniums, &c. (*Wakefield and Halifax Journal*, Sept. 27.)

June 19. Among the green-house plants exhibited was a very fine specimen of Callistèmon salígnus. This splendid specimen is a native of New South Wales, and was introduced into this country in 1788; it stands 12 ft. high, is covered with upwards of thirty spikes of beautiful scarlet flowers, and was a plant of general admiration in the room. A beautiful fuchsia in full flower was exhibited by Mr. Hammond. The ranunculuses were small and few; but the roses, pinks, and pelargoniums were very fine. (*Ibid.*, June 22.)

York Florists' Society. — *June* 17. This show consisted chiefly of ranunculuses and pelargoniums; and many very fine specimens were exhibited. (*Ibid.*)

York Horticultural Society. — *April* 24. Much taste was shown in the arrangement of the plants and flowers; and on entering the hall, the spectacle was a striking and beautiful one. In the middle of the centre circle of a noble Gothic room, tables were placed, which were covered with auriculas, hyacinths, polyanthuses, bouquets, &c., in rich profusion; together with a number of beautiful plants in flower, from the stoves and green-houses of several friends to the Society. On each side were ranged a great variety of noble exotics, from the stoves and green-houses of Dr. Simpson, Miss Nelson, Mrs. Pickard, J. Buckle, Esq., Alderman Oldfield, Messrs. Backhouse, Mr. Hammond, and Mr. Priestman. A beautiful specimen was exhibited of Wistària Consequàna, which excited much attention, and was universally admired. Among the ornaments of the room were a number of flowers cut from turnips, carrots, and other vegetable substances, by Mr. Johnstone, cook at the Black Swan Hotel, which were much admired. (*Yorkshire Gazette*, April 7.)

GUERNSEY AND JERSEY. — *Guernsey Horticultural Society.* *July* 25. This was the first public exhibition of a Society which has not been long formed, but which is rapidly attaining considerable importance. The carnations consisted principally of the kind called yellow picotees, with a few flakes and bizarres; and filled a stage of four shelves, each shelf being 42 ft. long. A large rose-leaved dark slate colour, attracted much attention; also two Guernsey seedlings, raised last year, in the Royal Sarnia, by Charles de Jersey, Esq.; and Dr. Brock's seedling. There were also three collections of cut flowers (yellow picotees), one containing eighty specimens of seedlings, from Dr. Brock, raised this year, comprising many of great beauty; and a specimen from Charles de Jersey, Esq., of seedlings raised this year, which attracted universal admiration; as did also that great favourite William the Fourth. The zeal and well-merited success of the two gentlemen above named are worthy of being imitated. It is impossible to particularise the merits of all the different flowers exhibited on the occasion; but among the most striking were those named the Duke of Norfolk and Lord De Saumarez. There was also a variety of rare and beautiful exotics, among which we particularly noticed Poívrea coccínea, Quisquàlis índica, Crìnum americànum, and Fúchsia globòsa, all in full flower; Astrapæ'a Wallíchi*i*, from the stove of Dr. Brock; a beautiful plant of Clèthra arbòrea, in full flower; and a table of rare ericas from Mr. Collyer's (a public-spirited nurseryman), together with three or four superb specimens of *Nèrium spléndens*, excited universal admiration, both for their beauty and perfume. (*Guernsey Comet*, July 29.)

Jersey Agricultural and Horticultural Society. — This Society, being only just established, has not as yet had any public exhibition; but, from the rules agreed upon at a meeting of several of the influential persons in the island, it appears likely to be of essential benefit: and we need scarcely add, that we most earnestly wish it success. (*Jersey Times*, Aug. 27.)

WALES.

Glamorgan and Monmouthshire Horticultural Society. — *June* 5. A number of green-house and stove plants were sent by Mr. Miller of Bristol, including a great variety of salpiglossises, ericas, and calceolarias. There were also many beautiful plants sent by the nobility and gentry in the vicinity, among which several cactuses and pelargoniums, and a most beautiful mesembryanthemum caused particular admiration. (*Glamorgan, Monmouth, and Brecon Gazette*, June 15.)

Swansea and Neath Horticultural Society. — *May* 25. This exhibition was remarkably fine in flowers, fruits, and vegetables; and the cottagers' flowers and vegetables were particularly admired. Seven prizes were awarded to cottagers, a circumstance highly creditable to the Society [and to the cottagers].

August. A number of very beautiful and valuable plants were exhibited; and many prizes were distributed, among which were about twenty to cottagers. We cannot allude to the productions on this occasion, as space prevents us, further than to say there were several hundred georginas in the room, but many sadly injured by coming from a distance. We are happy to remark that the non-subscribers were doubled on this occasion, and the cottagers increased. We think it well to notice a collection of carnations which were brought by Thomas Harper, as it may induce cottagers to cultivate good things; for this man obtained orders for five dozen of his flowers, at 1*s.* each, from several ladies of distinction: therefore, far greater advantages may accrue to the cottager than merely the prize or prizes awarded to him. (*Cambrian*, Aug. 31.)

SCOTLAND.

Aberdeenshire. — *Aberdeenshire Horticultural Society.* *Nov.* 12. 1832. Prizes were awarded for apples, pears, vegetables, and flowers. (*Aberdeen Journal*, Nov. 14. 1832.)

June 22. The specimens presented for competition were excellent, particularly the peas, cauliflowers, and potatoes. There were only two specimens of cherries; the one from the garden of Colonel Campbell of Blackhall, and the other from the garden of Sir R. D. H. Elphinstone of Logie Elphinstone. Two specimens of strawberries: that from the garden of Mr. Aiken, Strawberrybank, was the best. Several groups of ornamental flowers were upon the table: those from the garden of Mr. Forbes of Springhill were the best and most admired. (*Ibid.*, June 27.)

Ayrshire. — *Ayrshire Horticultural and Agricultural Society.* *May* 31. The show of horticultural produce was reckoned fully superior to the average display at the commencement of the season; and, in addition to the classes to which prizes were awarded, many choice specimens of rare and beautiful plants and flowers were exhibited. The show of tulips was much admired; and, we understand, even a more varied and brilliant display might have been exhibited, but for the intense heat which prevailed for the last few weeks bringing many beds too early into bloom. Among the choice plants we noticed the following: — *Pæònia* tenuifòlia plèna, a very fine plant, a native of Russia, and the first time ever exhibited in Britain; two varieties, élegans and álba, of the *D*odecàtheon Meád*ia*, or American cowslip, both beautiful plants; *L*ílium monadélphum, not a very rare but a very fine plant; three species of Cypripèdium, or lady's slipper, pubéscens, parviflòrum, and Calcèolus; Campánula *S*axífraga, a rare and fine species from Siberia; from Mr. John Goldie, Wrightfield. A fine specimen of the *R*òsa Bánks*iæ* lùtea, reared on the open wall, from Mr. Skinner, Auchincruive. A beautiful specimen of the *S*axífraga *C*otylèdon, from Roselle garden, attracted much attention. A fine specimen of the Cèreus flagellifórmis; good specimens of the Tropæ'olum pentaphýllum, *O'*xalis floribúnda; *R*òsa Smíth*ii*, or yellow Noisette; and *Petùnia* phœnícea, from Messrs. Smith and Son. Some very fine specimens of citron fruit, from Mr. Rose, Eglinton Castle. Among the agricultural specimens, a species of clover, exhibited by Mr. Skinner, Auchincruive, attracted much attention: the *T*rifòlium incarnàtum, an Italian annual, not so remarkable for its recent introduction, as for its limited cultivation, in this country. We understand the Society are indebted, for the introduction of the seed of the specimen shown, to their benevolent patron, Mr. Oswald of Auchincruive. The spike of flowers is of an oblong shape, about 3 in. in length, and of a dark red colour; the stalk, full grown, measures 3 ft. Mr. Skinner observed that the seed is remarkably prolific. About the 1st of September last, he sowed 30 falls, which brairded in about three weeks, and was in full bloom about the middle of May; presenting a most luxuriant appearance, and yielding about 300 stones per acre. A variety of early vegetables were shown. Dale's hybrid turnips were admired. The mangold wurzel, which was shown by Mr. Aiton, Fullerton, from its size and fine state of preservation, attracted particular observation, being considered superior to any hitherto exhibited at this season of the year. (*Air Advertiser,* June 6.)

Sept. 4. The room was tastefully decorated with arches, and festoons of flowers and shrubs; and many of the articles exhibited for competition were certainly very fine specimens. The agricultural department of the show was rather deficient in point of quantity and variety; but, we believe, steps will be taken to remedy this defect against next year. Among the plants shown was *V*erbèna venòsa; Erythrolæ'na conspícua, 9 ft. high. There was also a decanter, made from a curious knotty piece of birch wood, presented by Mr. Fergusson, wright, Wallacetown. A sowing machine, presented by Mr. Daniel M'Naught, Warwick; and, as far as regarded carrots, those who saw it, and were competent judges, approved of it, and recommended it to the notice of the Highland Society. A branch of an arbutus or strawberry tree, covered with fruit, was presented from Roseneath flower-garden: the plant, although only nine years planted, measures 41 ft. in circumference, and 9 ft. in height. A quantity of figs was exhibited, from Mr. Selkirk, gardener, Roseneath, from a tree 41 ft. in breadth by 18 ft. in height, on which there are at present above 1000 fruit. Mr. Alexander Malcolm, gardener, Roseneath Cottage, presented specimens of red beet and carrots; also three bottles of wine, made from white, red, and black currants, without any addition of wine or spirituous liquor. The red, in particular, was considered very excellent. (*Ayr Observer,* Sept. 10.)

DUMFRIESSHIRE. — *Dumfries and Galloway Horticultural Society. Sept.* 19. Mr. Grierson produced 41 new kinds of potatoes, which he had cultivated in his garden at Baitford, from seed which he had received from Mr. Lawson, Edinburgh, seedsman to the Highland Society. He also produced a large and fine specimen of black turnip. A fine stalk of Indian corn, 12 ft. long, was exhibited by Mr. John Rankine. A prize of one sovereign was awarded to R. Black, blacksmith, Tynronkirk, for the best kept cottage garden, and in which was the best assortment of vegetables. Prizes were also awarded to the same person for the best onions, cabbage, and savoys; to Thomas Smith, shoemaker, Tynronkirk, for the best carrots and turnips; and to John Hairstens, Thornhill, for the best German greens, potatoes, and onions. The show of fruit and flowers was very fine. (*Dumfries and Galloway Courier*, Sept. 25.)

FIFESHIRE. — *Cupar Horticultnral Society. Sept.* 19. The specimens exhibited were very fine, but there was not so great a variety as we have occasionally seen exhibited: the show was principally of fruit, but there were some few flowers. (*Fifeshire Journal*, Sept. 21.)

St. Andrews Horticultural and Floral Society. Sept. 16. The fruits were of the finest description; and there was a rich variety of flowers, both hardy and exotic. The collection of georginas presented, in their fineness of form and beauty of colour, a very interesting spectacle. The culinary vegetables also were of an astonishing description, and showed at once the excellence of their culture. Such a display of fruits, flowers, and vegetables was never before seen within the ancient and venerable city of St. Andrews. There was shown, from the garden of Mrs. Cheap, a splendid broad-leaved myrtle in full bloom; Calceolària rugòsa, bícolor, trícolor, and Caley*àna*; Fúchs*ia* globòsa, microphýlla, grácilis, and a splendid collection of georginas; also a pot of muscadine grapes, fourteen bunches, from the garden of John Small, Esq.; some fine seedling georginas from the garden of Mrs. Glass, Abbey Park, and from the garden of Col. Lindsay of Balcarres; some beautiful seedling carnations, and twelve dark double hollyhocks from Mr. Lumsden's, Lathallan; and some excellent georginas, &c., from Mr. Bowsie, writer. (*Ibid.*)

MID-LOTHIAN.— *Caledonian Horticultural Society. Dec.* 6. The prize samples of fruits and vegetables formed a rich and interesting display, superior to any which we have lately witnessed. The specimens of fine winter pears belonging to kinds recently introduced from France and Flanders, and now successfully cultivated in many of our gardens, occupied a prominent place. The dessert apples were likewise much admired. All the specimens had the names attached to them. The collection of shaddocks, and of oranges, sweet and bitter, was interesting; many persons scarcely believing that Scotland could have produced such fruit: they were chiefly from Woodhall, Dalhousie, and Raehills gardens. Among the uncommon culinary vegetables, one of the most important was a basket of blanched Buda kale (or Jerusalem kale) from Archerfield, where, it was mentioned, this dish has become a favourite. Genuine specimens of three uncommon kinds of beet, the Neapolitan, Bassano, and red turnip-rooted, were from the Society's Experimental Garden at Edinburgh; also the purple and white kohl rabi, and likewise several kinds of turnips, of uncommon shapes and colours, particularly the Boatfield turnip, long white and long yellow, white French, and white French tipped with pink, and the new black turnip, supposed to be a hybrid between a white turnip and the black Spanish radish. These productions were considered highly creditable to the zeal and talents of Mr. Barnet, the superintendent of the gardens. The secretary read an account of the cultivation of the water-lemon, or fruit of the Passiflòra *l*aurifòlia, at Ripley Castle in Yorkshire, by Mr. Thomas Henderson, gardener there, and also a letter from James Spence, Esq., announcing a present to the garden of fifty kinds of bulbs and seeds, lately brought from the Cape of Good Hope by Lieutenant Williamson of the 42d Regiment. (*Edinburgh Advertiser*, Dec. 11. 1832.)

March 7. Besides the competition flowers, a splendid collection of hyacinths was exhibited by Messrs. James Dickson and Sons, comprising most of the rare kinds now in cultivation. Mr. Thomas Cleghorn, seedsman, also produced an excellent collection of hyacinths, and Mr. Cunningham of Comely Bank Nursery sent a fine seedling camellia raised in Scotland. Of the plants sent for exhibition, the following were among the most conspicuous: — Two splendid plants, in full flower, of the Azàlea *l*edifòlia, a specimen of the *C*innamòmum vèrum in full fruit, a rare occurrence in this country; also specimens of the Galánthus plicàtus, A'jax exíguus, A. nànus both màjor and mìnor, *A*càcia affìnis, flowered in the open air, all from the garden of the Society's secretary at Canonmills, and with which the committee were so much pleased as to pass a unanimous vote of thanks to Mr. William Brackenridge, his gardener, as affording ample proof of skilful management. An elegant plant of E'pacris impréssa was sent from the rich collection of Professor Dunbar, at Rose Park. From Mr. Cunningham's nursery at Comely Bank were sent a fine plant of *R*hododéndron arbòreum hýbridum, also a collection of rare camellias in full flower. A large and splendid plant of *E*rìca linnæöìdes, which occupied the centre of the exhibition table, and a specimen of the Platylòbium parviflòrum, from the Royal Botanic Garden, were much admired. The Society's Experimental Garden supplied well-grown specimens of Phœnócoma prolífera, and Ardísia crenulàta, besides varieties of rare and curious culinary vegetables, consisting of beets, turnips, kohl rabi, and Buda kale. (*Edinburgh Advertiser*, March 12.)

Experimental Garden, Edinburgh. — *June* 6. When the competition was over, the whole plants (except the calceolarias, of which there were 120 pots, and which occupied a separate stage) were arranged on the extensive stage before alluded to, which was about 60 ft. in length, the largest plants being placed in the centre. The *coup d'œil* was very grand, and the most competent judges declared that they had never witnessed so rich a display. Some of the most remarkable were from Mr. Cunningham's nurseries at Comely Bank; such as Borònia serrulàta (probably the finest specimen in Europe), *E*rìca flòrida álba, and Schizánthus Hoókeri. Others, of great merit, were from the collection of Professor Dunbar at Rosepark, particularly about twenty species of beautiful and splendid examples of Cape ericas and Azàlea índica phœnícea, Alstrœmèri*a* pulchélla more than 7 ft. high, and Corræ'*a* speciòsa. Some fine plants were from the nurseries of Messrs. Dìckson and Co., Leith Walk, particularly Fúchs*ia* globòsa, and Callístachys ovàta and lanceolàta. The numerous specimens from the nurseries of Messrs. James Dickson and Sons, Inverleith, attracted much notice, particularly the Nierembérg*ia* [*Petùnia*] phœnícea and N. grácilis. As on former occasions, the Royal Botanic Garden contributed largely to the show; among the most remarkable plants from that excellently managed establishment were an elegant palm, *Latània* borbònica, with *E*rìca metulæflòra, spùria, and odoràta, all of great beauty. Some good specimens of Camélli*a* and Fúchs*ia* were sent from Dalhousie Castle garden. We must not omit to notice a new species of Nierembérg*ia*, unrivalled for colour, raised from seeds brought from South America, at the garden of Mr. Neill, from whose collection also appeared very fine specimens of Dionæ'*a* muscípula and Sinníng*ia* guttàta. The garden of the Society afforded some noble plants, particularly *Araucària* Cunninghàm*i*, *N*epénthes distillatòria, Fúchs*ia* Thómson*i*, Begòn*ia* lùcida, and Cypripédium spectábile; the latter of extraordinary size and beauty. A specimen of Cèreus flagellifórmis, trained to a neat small trellis, and covered with flowers, from the garden of Mr. Waddel, Hermitage Hall, had a singular effect. An incomparable specimen of *R*òsa Bánks*iæ*, covered with clusters of flowers, from an open wall (west aspect) at Hopetoun House garden, was much admired. Some very admirable specimens of camellia, from the garden of Sir Robert Preston of Valleyfield, occupied a prominent place on the grounds. (*Edinburgh Advertiser*, June 7.)

Renfrewshire. — *Glasgow Horticultural Society. June* 21. Several specimens of the choicest flowers were shown, which attracted general admiration: the vegetables exhibited were early, and of the most excellent quality; and the fruits, such as peaches, nectarines, and strawberries, were very superior both in appearance and flavour. The prizes were awarded chiefly for ranunculuses, roses, anemones, and other flowers of the season. (*Glasgow Free Press*, June 22.)

STIRLINGSHIRE. — *Stirling Horticultural Society. May* 7. Prizes were given for auriculas, hyacinths, and other spring flowers; there were also many green-house and stove plants exhibited, and, being splendid specimens, the plants in full flower, and, in general, properly named, they gave much interest to the show. (*Ibid.*)

July 4. — Besides the prizes distributed for the usual articles, the directors having offered a silver medal, with an inscription (to the person, whether a member of the Society or not), for the best model of a moss or heath house, and a premium for the best rustic chair to be produced at this meeting, a spirited competition took place, when the result was as under: Moss house, 1st, James Henderson (aged 16), son of Mr. William Henderson, gardener, Gartur; 2d, James Faichney, journeyman gardener, Airthrey Castle; 3d, Michael Carmichael, apprentice gardener, Polmaise. Besides these, there appeared in competition two models from Blair Drummond, one from Kippenross, and one from Westertown. Rustic chair, 1st, James Clow, Westertown; 2d, John MacKenzie, Blairdrummond; 3d, George Gow, Wester Livilands. Alexander Gow, Wester Livilands, a rustic bridge, formed over a chasm of rockwork, studded with wild plants. The principal object of attraction, on this occasion, was this admirable collection of moss houses, which occupied a large table, placed on the terrace contiguous to the hall: it, being appropriately overhung with indigenous shrubs, produced an effect novel and imposing. All the specimens in this department were particularly admired, and reflected the highest credit on the ingenuity and taste of the juvenile constructors. Displays of these useful decorations, so much connected with the improvement of our flower-gardens and rural scenery, are a new feature in the exhibitions of horticultural societies, and are as yet peculiar to Stirling alone. The subject is certainly deserving of the highest encouragement, and there can be no doubt that the example will be followed in other districts. (*Ibid.*, July 12.)

[We like much the idea of inducing young men to compose rustic structures, combining rockwork and vegetation, because we think it will improve their taste in landscape-gardening. We recommend the idea to be pushed farther, and encouragement to be given for models of plantations, grouped in the natural manner. A board might be adopted as the surface of a park or lawn, and sprigs might be stuck into it in imitation of trees; water, rocks, roads, and walks might also be introduced.]

Sept. 12. — This exhibition was for georginas, hollyhocks, &c., and autumnal fruits and vegetables. Numerous fine specimens were shown, and many prizes were awarded. (*Ibid.*, Sept. 20.)

IRELAND.

Belfast Horticultural Society. — *May* 21. Among the flowers, the tulips were, of course, at this season the greatest attraction. The anemones and ranunculuses were not equal to what we have seen on former occasions. Some tender heaths, of great beauty, were exhibited, which very deservedly obtained a prize. The China roses were particularly remarkable for their rarity; some very uncommon kinds having been produced for the first time. Many of the pelargoniums were new varieties, and they presented a splendid appearance: as a whole, they were decidedly a magnificent collection, and prove what skill and care were used by the competitors. The double stock gillyflowers were not fine. Two beautiful plants of the cactus tribe excited the admiration of the meeting: Cáctus triúmphans (the finer of the two by far), Mr. Scott; and Cèreus speciosíssimus, Mr. Anderson. The fruits presented some ripe strawberries (from the gardens of the Marquess of Donegall and of Mr. Brownlow), ripe grapes, full-grown green peas, carrots, turnips, cauliflowers, and asparagus; the last of a very superior description. A very fine cucumber (measuring about 24 in. in length), which was raised by Mr. Scott (Ormeau). (*Northern Whig*, May 23.)

Dublin Horticultural Society.— April 30. The display of rare and beauteous productions of the garden afforded convincing proof that horticulture is making rapid strides in this country. Amongst the plants exhibited, we were particularly struck with the beauty of two specimens of rhododendron, hybrids between the arbòreum and catawbiénse. This splendid variety never before flowered in this country. They were sent from Mr. Toole's nursery, Cullen's Wood. From the College Botanical Gardens, among other remarkable plants, we perceived the Fúchs*ia* globòsa, the Anthocércis littòrea, the *Petùnia* phœnícea, and the *A*càcia verticillàta. The botanical garden at Glasnevin also contributed a number of fine exotic plants; and others were sent by the gentry of the neighbourhood. (*Warder*, May 4.)

June 18. An exceedingly fine and well-grown specimen of *Petùnia* phœnícea, and a great variety of fine calceolarias sent in by Mr. Scott, gardener to R. Williams, Esq., Drumcondra Castle. Mr. Scott's fine striped seedling georgina (Scott's defiance), which obtained the prize last autumn, was exhibited in flower. Two vines, in pots, bearing large bunches of ripe grapes, raised from layers this year; also some enormous cucumbers, sent in by Mr. Nevin, from the chief secretary's gardens, together with the beautiful Campánula laciniàta and púlla, Lapeyroùs*ia* speciòsa, &c., and an uncommonly fine plant of Cèreus speciosíssimus, in flower and fruit. Two very fine baskets of pelargoniums, from the Royal Dublin Society's Botanic Gardens. A very beautiful variety of the Indian cress Tropæ`olum màjus, introduced from Constantinople; it was sent in from the garden of Charles Hamilton, Esq., Ham Wood. (*Ibid.*, June 22.)

August 8. The following splendid exotics were sent in from the College Botanic Gardens, not for competition, but to ornament the stages, viz., Cèrcus speciosíssimus, Chiròn*ia* trinérva, *Latània* borbónica, *Petùnia* phœnícea, Kalosánthes coccínea and versícolor, *Angelònia s*alicariæfòlia Alstrœmèr*ia Pelegrìna*, Hedýchium máximum, *V*ínca ròsea álba, Amarýll*is* pulverulénta, A. purpuráscens, Nierembérg*ia* grácilis. Among the miscellaneous articles sent in to ornament the stages, were a collection of annual plants, upwards of thirty in number, of new and beautiful kinds, from the gardens of the Right Hon. William Saurin, and a branch of white currants, of extraordinary fertility, from Mr. E. Murphy's garden, at Killester; also a fine basket of ericas from the garden of Samuel White, Esq., Killakee.

Dublin Fruit and Flower Exhibition. — *Aug.* 8. Mr. Nevin, gardener to the chief secretary, exhibited specimens of *G*ladìolus natalénsis and Escallòn*ia* montevidénsis, which were much admired. Two baskets of heath were very beautiful, and several of the plants from private gardens; we were glad to see herbaceous plants in the exhibition, as they have been too long neglected. (*Dublin Times*, Aug. 11.)

Waterford Horticultural Society. — *April* 25. This was the first show, and the display of every production of the garden and the green-house was superior to anything that we could have expected at this early and hitherto unfavourable season, and we are convinced that many, like ourselves, almost forgot the period of the year, while looking on the quantity of pines, grapes, strawberries, apples, &c., in full perfection of ripeness, surrounded and ornamented with full-blown roses, mignonette, pelargoniums, tulips, anemones, hyacinths, auriculas, &c. &c. (*Waterford Mirror*, April 27.)

Aug. 10. So gorgeous a collection of fruit was never before seen within our precincts, nor probably within a large district around. Pine-apples and grapes brought down by Mr. Smith, the gardener of Arthur Keily, Esq., of Ballysaggartmore, deserve particular mention, having been a theme of general admiration for their enormous size and surprising perfection. Among the botanical productions, we noticed a most splendid *Yúcca* gloriòsa, with one thousand blossoms, from the Waterford Nursery; a very fine *Yúcca* filamentòsa, from Miss Davis; Amarýllis supérba, with other select plants, from Woodstock; erythrinas, &c., from Curraghmore. The pines, peaches, melons, grapes, &c., were truly splendid, from Curraghmore, Ballysaggartmore, Mount Congreve, &c., with a delightful profusion of georginas, carnations, &c. (*Ibid.*, Aug. 12.)

NOTICE TO THE SECRETARIES OF PROVINCIAL HORTICULTURAL SOCIETIES. — The above notices for the year 1833 are, no doubt, incomplete; partly because we are obliged to go to press early in October, but chiefly because notices of several provincial societies have not been sent us. In our February Number, however, we intend to publish a supplement to the present article, in which will be included all the notices sent us between the middle of October and January 1. 1834. As we should wish to render these notices complete, we request the Secretaries of Provincial Societies to look over this article, and the list, on the cover, of papers received, and to supply us with what is wanting. We are most anxious to show to the world how very generally a taste for gardening is diffused over the country. — *J. W. L.*

ART. IX. *Obituary.*

DIED, at the Norwich Nursery, on the 4th of September last, *Mrs. Sarah Mackie*, aged 59 years. — This estimable person was the widow of Mr. William Aram Mackie, and for the last sixteen years has conducted the business of this extensive fruit and forest tree nursery, with the design of preserving the trade and its connections for her rising family. In the performance of this arduous task she was singularly active and exemplary, and her exertions have been for many years attended with great success, though her hopes with regard to the succession of her two elder sons were painfully disappointed. Both were cut off just as they entered the period of manhood. The first (Edward Mackie) perished by an accident, while shooting wildfowl at the mouth of the Tees; and the second (George Mackie) fell a victim to the small-pox, after vaccination. Notwithstanding these bereavements, Mrs. Mackie still continued the business with unabated attention for the benefit of her surviving children, until September last, when she was herself removed, after a very short illness. This nursery is an example of the rapid course of modern improvement, for persons only lately dead could remember the whole extent of the ground and a mile beyond it an entire heath, only used as a sheepwalk. Yet this spot, which was taken into cultivation about sixty years ago, has been rendered the centre from which a great part of Norfolk and Suffolk have been supplied with the numerous plantations which have so much improved this district. This change took place through the exertions of Mr. John Mackie, with whom the nursery originated, and from whom it descended, in 1797, to his two sons, William Aram and John Mackie, by whom it was conducted with great spirit and success, until their respective deaths in 1817 and 1818, when it fell into the hands of Mrs. Sarah Mackie, whose death we have now to record. The Norwich Nursery will now be carried on by Mr. Frederick Mackie, the eldest surviving son, who has just added to the former stock the entire collection of succulent plants lately belonging to Mr. Thomas Hitchen of Norwich, which has been highly esteemed for the great rarity and beauty of the plants of which it consists. —*J. G. Norwich, Nov.* 1. 1833.

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